ANALYSIS OF SOFTWARE PRODUCT STRATEGY AT TPS

by

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Abstract

The purpose of this report is to help TPS make strategic decisions about the future of its human services software products. TPS is a privately held company that entered the software publishing industry in 2006 with the intent of selling products and services to the human services software market. However, TPS' portfolio of products experienced uneven financial performance over the last four years, resulting in the need to reconsider its software product strategy. This report presents findings from a review and analysis of the US software publishing industry and the US human services industry, including a definition of market size, customer needs, desirable software features and attributes, and the competitive landscape. The report concludes by identifying TPS' diverse IT services and skilled technical staff as its key strengths, while recommending that the company redevelop its Sohema product using a new technology platform.

Executive Summary

The purpose of this report is to help TP Systems (TPS) make strategic decisions about the future of its Sohema Human Services Software product. TPS is a privately held and owner-operated IT company based in New Westminster, Canada, selling products and services to the human services industry. Although TPS entered the software publishing industry in 2006, the company's portfolio of products has experienced uneven financial performance over the last four years, culminating in the suspension of new product development in early 2010 to undertake an initiative that critically reviews its software product strategy. This report represents the first step in that initiative, with a mandate to provide TPS with a better understanding of the human services software market via a detailed industry analysis, while making strategic recommendations about the future of the Sohema product.

In order to understand the US human services software market, research and analysis was conducted on the US software publishing industry (suppliers), to define profit and cost benchmarks, market segments and market size, and on the US human services industry (buyers), to define business challenges, market segments and market size.

Key findings pertaining to the US software publishing industry are as follows:

- Software vendors enjoy an average profit of 20%
- Software vendors typically spend 12% of their annual revenue on research and development spending
- Sohema is being sold to the health care and social assistance application software industry segment, which has market size of approximately $600 million

Key findings pertaining to the US human services industry are as follows:

- human services organizations are typically non-profit and generate their funding from a variety of sources which differ depending on the size of the organization
- most of the funding provided to human services organizations is spent on operational costs, particularly wages

- major business challenges in the human services industry include: improving overall operational efficiency; meeting new funding accountability measures; reducing fraud; improving fundraising techniques; handling higher demand for services; and, managing the impact of regulatory changes

Finally, key findings pertaining to the human services software market, which represents the intersection between these two industries, are as follows:

- buyers use multiple solutions to support business functions and processes, including case management software, financial management and accounting software, reporting software, and fundraising and social media software
- in particular, buyers of case management software, such as Sohema, expect products to possess a minimum feature set
- upon entering the US market with Sohema, TPS will compete with other human services software vendors, such as Defran, CTK and Qualifacts
- worthy alternatives to existing human services software are available to human services organizations, such as EMR/EHR software for the health care industry and open source CRM software, increasing competition
- the human services software market has a moderately attractive structure, making it easy to enter but difficult to compete due to a high number of incumbent vendors and product substitutes

These findings enable an analysis of Sohema's feature set in relation to market requirements and an analysis of TPS' resources and capabilities in relation to industry key success factors, with findings as follows:

- Sohema has less than half of the features expected by human services software buyers, indicating a major need to improve the product, as evidence identifies the lack of features as a major reason for lost sales
- TPS has a competitive advantage in terms of its broad IT services provision, supported by highly skilled technical staff

- in order for TPS to compete more effectively, it will have to increase its research and development spending and improve its software implementation processes, while investing more in obtaining US human services industry domain knowledge

TPS has four options available for altering its software product strategy for Sohema:

1. invest in the existing version of Sohema
2. redevelop Sohema using a new technology platform
3. develop a new product for a new market segment
4. resell another vendor's product

Based on specific strategic and financial objectives defined by TPS executives, and by using the findings previously described, this report recommends that TPS redevelop Sohema using a new technology platform, so that TPS may leverage its existing domain knowledge and customer accounts, while transferring the risk of technology platform development to another vendor. TPS may also want to consider subtle changes to its corporate culture, and introduce the Product Management discipline in order to improve overall performance of its software product strategy.

Dedication

To my wife Annette, the smartest investment I ever made.

Acknowledgements

I would like to acknowledge the following people for their assistance with this report:

- Rick Colbourne, my SFU MOT MBA project advisor, for providing guidance, support, and a critical eye.
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- Joe Naughton-Travers, a senior consultant at Open Minds, for sharing his deep industry expertise and sense of humour.

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Abbreviations

CRM	Customer Relationship Management
EHR	Electronic Health Record
EMR	Electronic Medical Record
ERP	Enterprise Resource Planning
NCCS	National Center for Charitable Statistics
NTEN	Non-Profit Technology Network
TPS	TP Systems

1 Introduction

The purpose of this report is to help TP Systems (TPS) make strategic decisions about the future of its Sohema human services software product. The development and sale of software products is a relatively new line of business for TPS. Since 2006, TPS has focused on developing and selling software for the human services industry in both Canada and the US; however, TPS has developed and sold five distinct software products during that time, each based on a different technology platform. Although TPS has found some success with its existing software products, results have been uneven, and its product strategy characterized as unfocused.

Earlier this year, TPS initiated a critical review of its business strategy for software products. Although TPS has used market research and analysis to formulate its past product strategies, this was conducted after the product was developed in the hope of finding suitable market opportunities. Furthermore, TPS did not have a clear understanding of industry benchmarks in the software publishing industry to guide its profit, cost, and schedule expectations. TPS executives agreed that the first step would involve learning more about the software publishing industry to benchmark performance, while generating insights into the human services industry to develop a deeper understanding of market needs. Consequently, TPS sponsored this report to focus specifically on the United States (US), with the assumption of greater opportunities there than in Canada.

Formulating a new business strategy requires the consideration of many factors including those internal and external to the company. As a result, the report is organized into three major chapters: the first chapter provides an overview of the company and its products; the second chapter presents findings from an analysis of both the software publishing and the human services industries; the third chapter presents findings from an analysis of the company's strategy, including the identification of the company's strengths and weaknesses, an evaluation of strategic options, and recommendations that TPS may consider to improve the performance of its software product strategy.

2 Methodology

A number of methods and tools were used to prepare this report, including primary and secondary research, models and frameworks common to the business administration discipline, and personal reflection. Research for the Company Overview chapter involved interviews with key company staff and reviews of company reports, presentations, customer surveys, and accounting records. Research for the Industry Analysis chapter included industry reports from IBISWorld[1] and Forrester[2], survey results from the Non-Profit Technology Network (NTEN)[3] and NPower[4], statistical data from Guidestar[5], the US Census Bureau[6], and the US National Center for Charitable Statistics (NCCS)[7], publications from IBM's Global Social Segment[8], and expert testimonials from consultants at Open Minds[9].

Analysis of the industries utilizes Five Force analysis (Porter, 2008), market segmentation analysis, and a definition of the competitive landscape using a strategic group map. Analysis of the company in the Strategic Analysis section includes a detailed resource and capability analysis and the identification of the company's key strengths and weaknesses. Finally, the evaluation of the company's strategic options emerged from the aforementioned research and analysis, and was augmented by interviews with company executives.

[1] IBISWorld provides industry and company research reports at www.ibisworld.com.
[2] Forrester Research is a technology and market research company that provides reports at www.forrester.com.
[3] NTEN is a membership organization of non-profit IT, providing reports at www.nten.org.
[4] NPower is a network of non-profit organizations that provide technology assistance to other non-profit organizations, with reports at www.npower.org.
[5] GuideStar provides detailed US non-profit reports at www.guidestar.org.
[6] The US Census Bureau provides the American FactFinder service to access data at factfinder.census.gov.
[7] The National Center for Charitable Statistics provides financial data concerning all registered US non-profit organizations at nccs.urban.org.
[8] IBM publishes a variety of reports and white papers concerning the social services industry, mostly targeting enterprises, under the social services heading at the following corporate website: www-935.ibm.com/services/us/gbs/bus/html/bcs_government.html.
[9] Open Minds is a market research and management consulting firm specializing in the mental health, addictions, social services, disability support, and related public health sectors of the health and human service field. TPS hired a consultant from Open Minds to provide his industry expertise. Reports are available at www.openminds.com.

3 Company Overview

This section presents an overview of the company, including its financial performance, organizational structure, history, customers, and products. The aim of this section is provide basic background information to set the context for the strategic analysis that follows.

3.1 Company Summary

TPS is a privately held and owner-operated information technology (IT) company based in New Westminster, Canada, with annual revenues nearing $15 million. Since its founding in 1977, TPS has served primarily government and non-profit organizations in the human services industry in the Canada and US, selling IT services and software products. The company employs over 110 IT professionals, including developers, project managers, and systems analysts, many with industry certifications, and has three offices located in: New Westminster, Canada; Victoria, Canada; and, Shenzhen, China.

Vision and Mission

TPS' corporate vision is to be "a community of professionals creating world-leading technology that benefits society" and its corporate mission is to be "…committed to being a creative and agile IT Services and Products Company, bridging the gap between technology and people… [and to translating] ideas into technology that generates a competitive advantage while improving people's lives." (TP Systems Ltd., 2009). In other words, TPS is dedicated to using its technology and capabilities to help those in need, which reflects its focus on selling products and services to the human services industry.

3.2 Organization and Ownership

TPS has three distinct yet complementary business units:

1. **Software:** which provides custom software development services and commercial software products;
2. **Outsourcing:** which provides managed IT support services; and,

3. **Staffing:** which provides IT recruiting services.

The company has three primary owners: John Thompson, the President; Scott Ross, the CEO; and, Mitchell Ngai, the COO and CFO. In addition to their executive duties, each owner is responsible for one of the major business units, overseeing its business strategy and performance, as indicated in the following organizational chart.

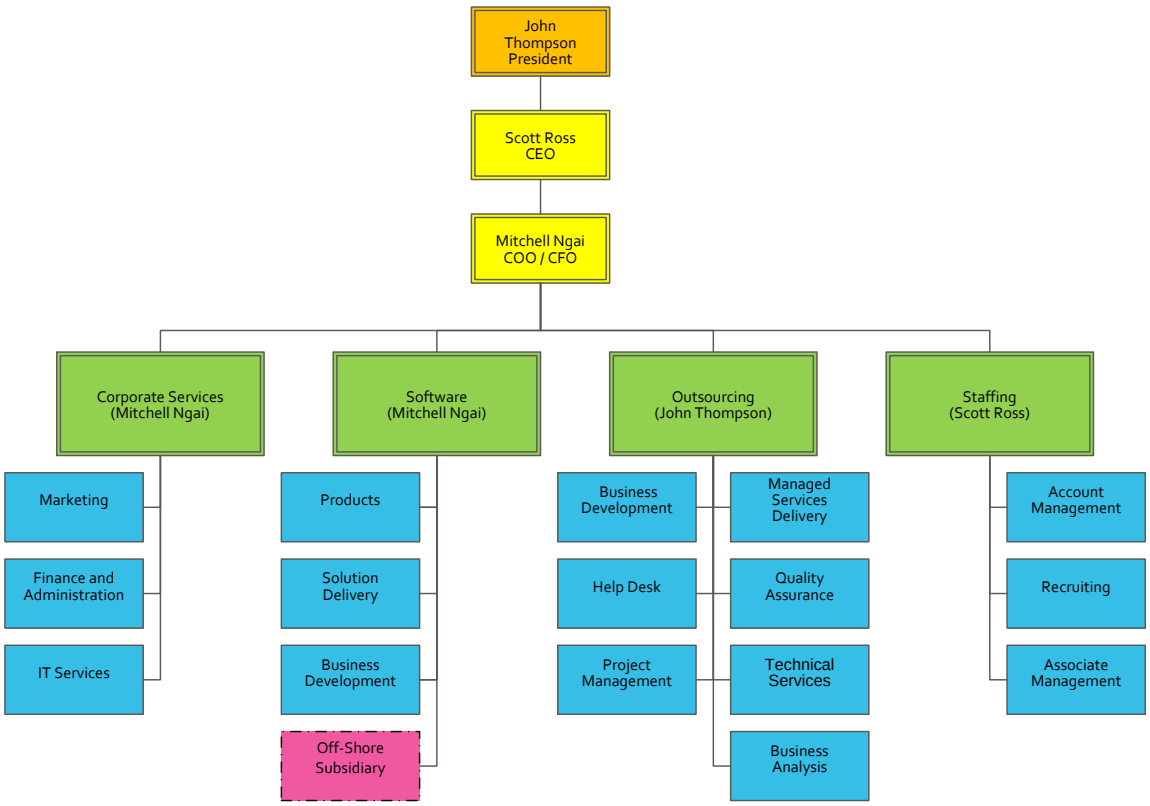

Figure 1: TPS Organizational Structure

Software

As the newest business unit in the company, the Software business unit is responsible for three primary activities: developing custom software, developing and selling software products, and performing any software product implementation services (e.g. such as requirements collection, project management, training, system configuration, data conversion, and custom integration). The offshore subsidiary in China, which is part of the Software business unit, is used primarily for quality assurance and development tasks that are typically repetitive or simple in nature.

Outsourcing

The Outsourcing business unit is the largest and oldest business unit in the company and is responsible for providing a variety of IT services to TPS customers. Its services include managing and monitoring both legacy and new software systems; providing help desk support to users; performing software fixes and enhancements; conducting business and systems analysis; and, managing projects.

Staffing

The Staffing business unit provides TPS customers with recruiting services for IT professionals. Customers hire TPS to find, screen, and recommend eligible candidates for open employment positions. The Staffing business unit also manages relationships with TPS' many contractors, who work across client sites.

Corporate Services

The Corporate Services unit provides shared services, such as finance, human resources, marketing, and IT / network services to the two Canadian offices.

Business Unit Synergy

Each business unit complements the others in beneficial ways. Staffing assists both the Outsourcing and Software business units by ensuring that TPS is able to hire resources rapidly for new projects or support contracts. Outsourcing complements Software by providing dedicated support teams to maintain custom software or product implementations. Finally, if TPS must downsize at the completion of a project or contract, the Staffing business unit often benefits as it generates recruiting revenue by placing surplus resources at other companies. Although these business units complement each other well, they formed organically over time.

3.3 Financial Performance

Overall, TPS has performed well over the past five years, with revenue growing steadily from $10 million to $15 million in 2009 averaging 10.5% in annual growth.

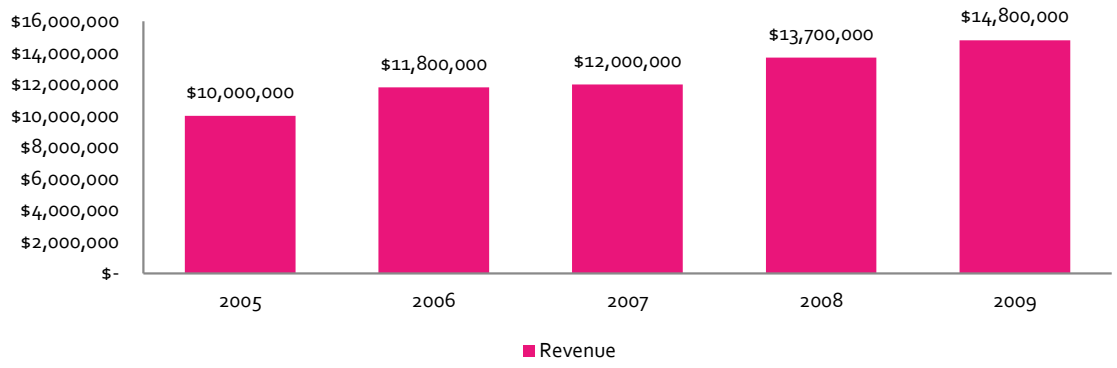

Figure 2: TPS Annual Revenue from 2005 to 2009

TPS currently generates most of its revenue via the Outsourcing business unit (44%), followed by the Software business unit (36%) and finally Staffing (20%). However, the Software Products division within the Software business unit accounted for only 16% ($2.4 million) of 2009 annual revenue; in prior years, the proportion of annual revenue generated from products has varied widely, reflecting uneven financial performance for this specific division within the company (Isaacs, 2010).

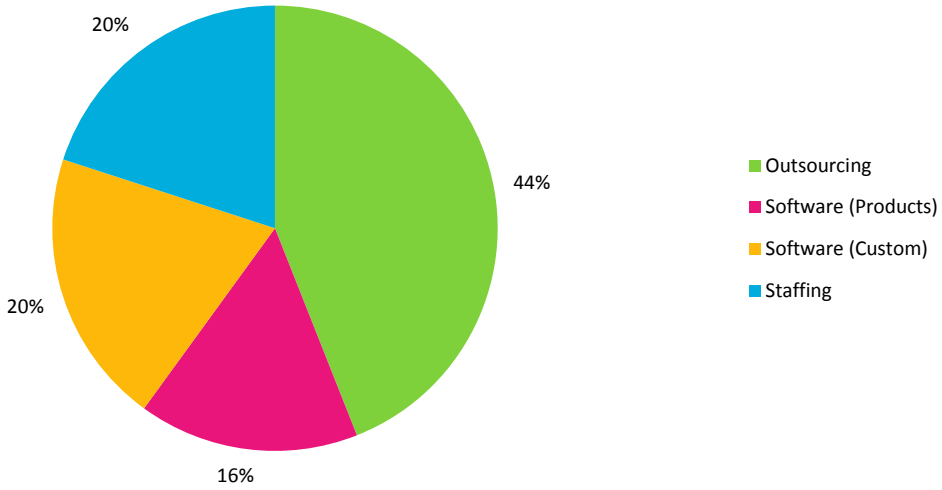

Figure 3: TPS 2009 Revenue by Business Unit (Isaacs, 2010)

Although the Outsourcing business unit represents 44% of annual revenue, it is important to note that the majority of that revenue is generated from a single customer. One reason TPS decided to enter the software products business was to diversify its sources of revenue to

reduce the risk of impact to the company if future contracts with this customer are not renewed.

About two-thirds of TPS' revenue is generated via services and products sold to customers in the health and human services industry, while the remaining revenue is generated from customers in adjacent industries, such as justice and insurance.

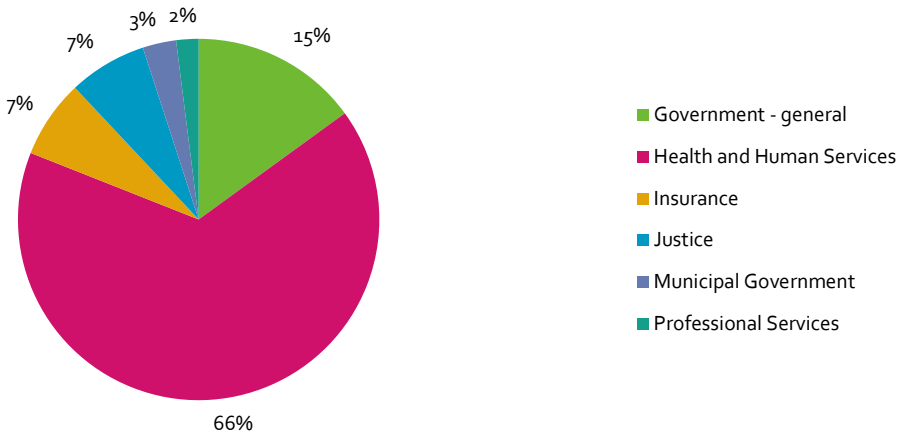

Figure 4: TPS 2009 Revenue by Industry (Isaacs, 2010)

This breakdown of revenue clearly demonstrates TPS' focus on the health and human services industry, with other sources of revenue coming from industries adjacent to health and human services, such as insurance and justice. Given the company's size ($15 million in revenue annually) compared to the overall size of the human services software market (which will be defined in the Industry Analysis chapter), TPS should have many opportunities available without needing to diversify across industry segments.

3.4 Staff

TPS employs many skilled IT professionals, including software developers, project managers, business and systems analysts, quality assurance analysts, and technical writers. Staffing levels have fluctuated over the past five years in response to shifts in revenue and macro-economic conditions. The following chart only depicts staff members who are directly employed (excluding contractors and employees in the offshore subsidiary). The reduction in staff levels recorded in 2009 is attributable to a reduction in the availability of custom software development project work.

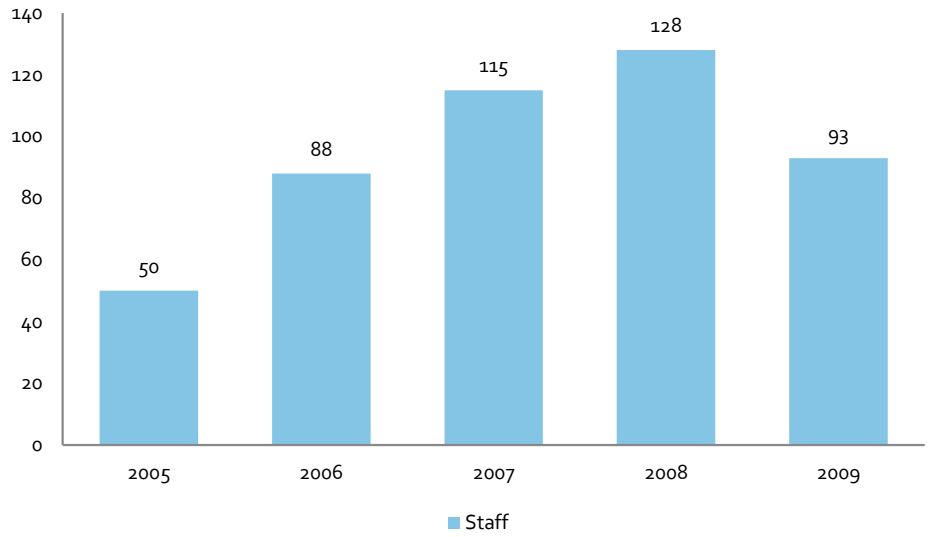

Figure 5: TPS Staffing Levels from 2005 to 2009 (Isaacs, 2010)

3.5 Company History

It is important to understand significant events in the history of TPS to contextualize the following analysis and to provide the reader with a better understanding of how the company arrived at its current situation. The following timeline diagram summarizes key events in the company's history, followed by a synopsis of important developments organized by year.

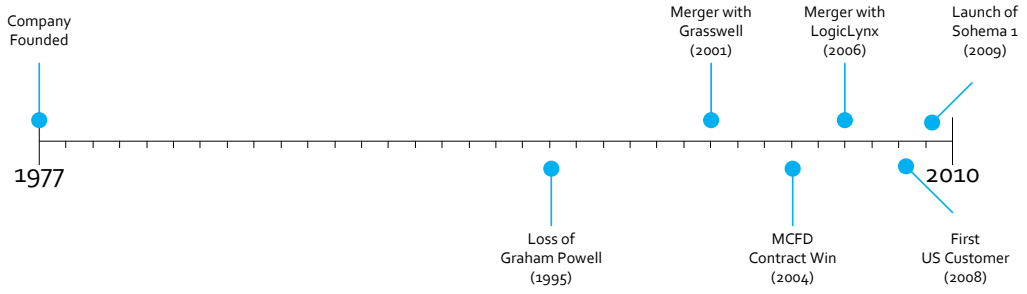

Figure 6: TPS Corporate History Timeline

1977

TPS was founded in 1977 by John Thompson and Graham Powell (hence the origin of the acronym TP). TPS' first office was located in John Thompson's basement where he and Graham

Powell gained their initial customers through cold calling; over the next 18 years, they proceeded to build a small but successful IT services company serving a number of government ministries and crown corporations in the province of British Columbia, Canada. At that time, their operations focused on sourcing IT contractors and coordinating IT projects between those contractors, leading to the establishment of both the Staffing and Outsourcing business units.

1995

Unfortunately, Graham Powell was killed in 1995 in a tragic car accident while on a trip to finalize the adoption of two children from a Russian orphanage. Mr. Powell's dedication to helping those in need continues to inspire the company's vision and values and informs its corporate strategy and focus on the human services industry. After the death of Mr. Powell, Mr. Thompson continued to operate the company and began searching for a new business partner.

2001

In 2001, TPS merged with Grasswell Management, another local IT services company owned by Scott Ross, as the two companies shared similar objectives, cultures and customers, increasing the size of the company by 30%.

2004

In 2004, the company was awarded a significant IT managed services contract from a public sector customer in the province of BC. The multi-year contract required TPS' Outsourcing business unit to support, maintain and enhance the customer's software applications. The business and revenue generated by this contract allowed TPS to expand and focus on new opportunities, such as investing in the development of software products.

2006

The company entered the commercial software publishing business in 2006 through acquiring the human services case management software product SectorLynx from LogicLynx Technologies. This acquisition added twelve staff members, augmenting TPS' customer portfolio to include non-profit and First Nations customers throughout Canada and leading to the creation of the Software business unit. Also in 2006, TPS developed and launched the

AdoptionLynx case management product for managing domestic adoptions in Canadian provinces, which is currently in use in the provinces of Ontario and British Columbia. Finally, in late 2006, Mitchell Ngai, a long-term TPS contractor, joined the company as partner.

2008

TPS completed the first major sale of its SectorLynx case management product to its first US customer in 2008. However, due to a lack of fit with certain customer requirements and a desire to reduce the costs of configuring SectorLynx, TPS chose to redesign the product in mid-2008.

2009

In 2009, TPS began marketing its new software as Sohema (an abbreviation of software for "Social Health Management"). Although the software concept initially attracted some interest from large software system integrators, TPS struggled to formulate a clear target market and feature set for its new software.

2010

At the beginning of 2010, TPS temporarily froze its product development projects to reflect on past product performance and to formulate a focused, coherent business strategy for software products that addresses real market problems and is a stronger fit with the company's resources and capabilities. After some preliminary analysis, TPS executives agreed to learn more about the US software publishing industry and the US human services industry, leading to the sponsorship of this report.

3.6 Products and Customers

TPS has a variety of products that it sells to customers in BC, Canada, the US, and Europe. What follows is a description of TPS' product portfolio, a list of its customers, and an overview of the relationship between the two.

Product Portfolio

Although TPS has three lines of business, this section will focus only on the Software division, which is specifically responsible for developing and selling software products and related

services. Over the last four years, TPS has developed and sold five distinct software products: AdoptionLynx, SectorLynx, BCFPI, Sohema, and Pathways. Some of the products are sold to the child and family services segment of the human services industry, which deals with adoption, foster care, and children's mental health; other products are sold to the general human services industry as solutions that address crosscutting operational needs.

AdoptionLynx

AdoptionLynx is a case management software product specifically built for public sector customers managing provincial domestic adoptions within the child and family services segment. This product helps organizations find permanent families for children waiting for adoption via a powerful matching engine, which is supported by a full set of client and case management tools. AdoptionLynx is the result of a custom software system developed for the BC Ministry of Children and Family Development by TPS that was subsequently sold to the Adoption Council of Ontario.

SectorLynx

SectorLynx is a generic case management software framework that may be configured and customized to address a wide variety of needs in the human services industry. The software was acquired from LogicLynx Technologies Inc. in 2006 and is actively used by a number of human services organizations, such as the BC Ministry of Children and Family Development, Family Services of Greater Vancouver, and the Yellowhead Tribal College in Alberta. But due to gaps in functionality and high labour costs associated with the product configuration and customization process, TPS chose to discontinue selling SectorLynx in 2009, while committing to support its existing customer base.

BCFPI

Since early 2007, the owners of BCFPI Inc. approached TPS to develop the Brief Child and Family Phone Interview (BCFPI) software, which is a mental health-screening tool for children. BCFPI reduces client intake costs by using statistical analysis to recommend evidence-based practices for treatment and has been sold to child and family services customers within Canada, the United Kingdom and Sweden.

Sohema

Sohema, TPS' flagship software product, is currently positioned as a general human services software product for both public- and private-sector organizations in the US and Canada. Sohema is a case management software product that allows human services organizations to manage client information and track the services delivered to those clients. While Sohema was designed to lower the costs of configuring the software for each new customer as a response to the challenges TPS faced in implementing SectorLynx, the software was developed hastily to meet aggressive implementation deadlines for its first adopter and resulted in a design that lacked the flexibility required for other types of customers. Furthermore, it is missing a number of key features central for competing with other products sold to the human services industry.[1] Sohema is still being sold, although major development has been frozen while TPS evaluates its software product strategy.

Pathways

Although Sohema's missing features prevent it from competing successfully in most of the human services software market, it is useful to customers in specific market niches. After reviewing a number of market niches in late 2009, TPS concluded that the product was well suited for the First Nations general human services market segment in Canada. As a result, Sohema was rebranded as Pathways. TPS has already found some success selling to that segment, but TPS executives feel that the market for this kind of product has limited sales potential.

Customers

The following table provides a list of the company's most prominent customers, most of which provide human services within British Columbia (Dubicki, 2010).

[1] A gap analysis of the product features in comparison with competing products is provided in the Strategic Analysis section.

Public Sector	Private Sector
• Adopt Ontario • Alberta Consumer and Corporate Affairs • Alberta Public Trustee • BC Liquor Distribution Branch • BC Ministry of Children and Family Development • BC Ministry of Community, Aboriginal and Women's Services • BC Ministry of Finance • BC Ministry of Health Services • BC Ministry of Human Resources • BC Ministry of Management Services • BC Ministry of Revenue • BC Ministry of Small Business and Economic Development • BC Ministry of the Attorney General • BC Ministry of Transportation • Canadian Coast Guard • Greater Vancouver Regional District • Insurance Corporation of BC • Legal Services Society of BC • Public Guardian and Trustee of BC • Worksafe BC	• Aeroinfo • BC Automobile Association • Canaccord Capital • Coast Capital Savings • Gemcom Software • IBM Canada • Impact BC • JEA Pensions • Maximus Canada • Motor Dealer Council of BC • Revenuewire • Sodexo • Vivonet **Non-Profit Sector** • The Paul Band • Disability Management Institute • Family Services of Greater Vancouver • Fraserside Community Services Society • WestCoast Family Resources Society • Yellowhead Tribal Council • University of British Columbia

Table 1: TPS Customers

Most of the customers are from the public sector, including provincial ministries and agencies within the province of British Columbia. However, TPS has customers in the non-profit sector, primarily due to the acquisition of SectorLynx, and in the private sector. Although TPS has several private sector customers, its focus on the public and non-profit sectors affords it a specific competency dealing with budget-conscious organizations that often employ public procurement processes.

Product-Customer Matrix

TPS sells to customers in the human services industry, encompassing both private sector and public-sector customers. The following product-customer matrix describes the general relationship between its products and customers.

	Customers		
Products and Services	BC	Canada	International
Software	✓	✓	✓
Outsourcing	✓		
Staffing	✓		

Table 2: TPS Product-Customer Matrix (All Products and Services)

In order to provide a more in-depth understanding of TPS' product portfolio, the following product-customer matrix provides specific detail on the positioning of TPS' software products in various geographical markets.

	Human Services Customers		
Products	First Nations	Canada	International
Child and Family Services			
BCFPI		✓	✓
AdoptionLynx		✓	
General Human Services			
SectorLynx	✓	✓	✓
Sohema		✓	✓
Pathways	✓		

Table 3: TPS Product-Customer Matrix (Software Products Only)

AdoptionLynx was sold only to provincial adoption agencies in Canada while SectorLynx was sold to customers in several geographic market segments, partly because of its unfocussed product positioning strategy. Sohema is currently sold to only Canadian and US customers, with Pathways (based on the Sohema platform) sold to the First Nations customers in Canada. Sales of BCFPI are currently managed by BCFPI Inc., which focuses on Canada, the United Kingdom, and Sweden. Overall, TPS focuses on selling to Canadian customers, with some movement into the US.

3.7 Chapter Summary and Conclusions

TPS is a well-established and diversified IT products and services company, operating in the human services industry with a focus on selling its products and services to Canadian and US customers. Annual revenue has been growing over the past 5 years, about 10.5% on average, indicating steady growth in comparison to the industry average of 2.3% over the same time

(Thormahlen, 2010). However, a high proportion of the company's revenue comes from a single customer, indicating financial risk if the ongoing contract with that customer is not renewed. And although the company's three distinct business units are complementary, they require TPS to divide its resources across them, making it difficult for the company to streamline its operations and focus. Finally, while the company has a broad human services product portfolio, the portfolio is mostly the result of changes in strategic direction and focus, indicating an inefficient use of capital over time. One of the aims of this report is to help TPS make better use of the capital allocated to product development and marketing. Therefore, the next chapter, Industry Analysis, provides a deeper understanding of the industries and markets relevant to the Sohema product, and the following chapter, Strategic Analysis, identifies the company's specific strengths and weaknesses, while recommending a new strategic direction for its software product Sohema.

4 Industry Analysis

Although Sohema will be sold in the market for human services software, a good understanding of both the software publishing industry and the human services industry is required to formulate a successful software product strategy. Given that executives at TPS presume the US presents the most opportunities, the research and data in the remainder of this report will focus solely on the US geographical industry and market segments. In this analysis, the supply side of the market is represented by the software publishing industry and the demand side of the market is represented by the human services industry. As a result, the analysis of each industry differs in content, focusing on general information that is relevant to understanding the specific suppliers and buyers in the human services software market.

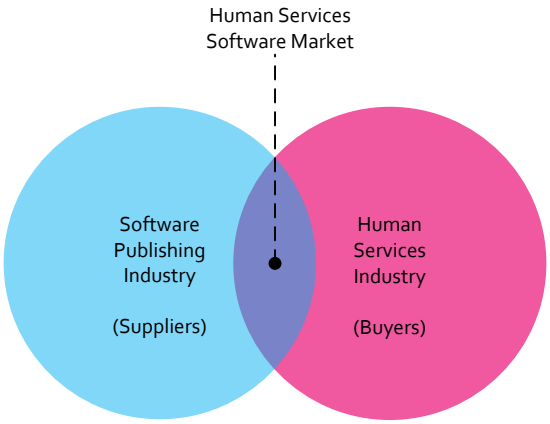

Figure 7: Industry Suppliers and Buyers Forming the Human Services Software Market

The analysis of the software publishing industry focuses primarily on the financial structure of the industry, market segmentation, and market size, with an aim to assist TPS in understanding industry benchmarks and setting its profit, cost, and schedule expectations. The analysis of the human services industry focuses on general characteristics and dynamics of the industry, with an aim to understand the problems that the industry faces. The analysis of the human services software market focuses on software needs and a description of the competitive landscape.

4.1 The Software Publishing Industry

The software publishing industry is comprised of vendors such as Microsoft, Oracle, IBM, and Symantec, who design and develop software for sale to individual consumers and businesses in almost every vertical industry. Although large software vendors, like the ones just mentioned, generate 52% of industry revenue, thousands of smaller vendors, like TPS, sell specialized software products to specific industries (Thormahlen, 2010). This section begins with an overview of the software publishing industry and its current dynamics, followed by a description of the industry financial structure, market segments, and a calculation of market size. The aim of this section is to provide TPS with profit and cost benchmarks, and a better understanding of the general industry structure.

Industry Overview

In order to provide TPS with profit benchmarks and an understanding of its role within the supply chain, this industry overview describes the overall revenue and average profit of the industry, followed by a description of its supply chain.

Revenue and Profit

The software publishing industry is a growing and profitable industry characterized by rapid change and strong competition. The industry generated over $150.7 billion in revenue in 2009 in which firms enjoyed a 20% profit on average (Thormahlen, 2010). Although industry revenue declined in 2009 due to poor macro-economic conditions, revenue is expected to grow by 0.3% in 2010 and accelerate to 3.7% in 2011, averaging 3% over the next five years (Thormahlen, 2010). Of most relevance is the 20% profit margin, which TPS can use as a basis for determining its own profit targets when preparing future business plans for the Sohema product.

Industry Concentration

Firms in this industry are subject to a moderate degree of concentration, with the four largest firms (Microsoft, Oracle, IBM, and Symantec) enjoying 52% of the industry's revenue (Thormahlen, 2010). Concentration is low, however, in particular segments, such as the application software publishing segment, which provides software tailored to the needs of specific industry verticals or cross-industry business functions (Thormahlen, 2010). Given TPS

sells products in the application software publishing segment, it should be assumed that concentration is lower and therefore more competitors are present. A detailed review of the competitive landscape provided in the Human Services Software Market section confirms this assumption.

Industry Supply Chain

Within the application software publishing segment, the industry supply chain may be characterized by three primary stages. First, software framework and tool vendors develop and sell the low-level software tools used to develop more sophisticated software; second, software application vendors purchase these tools to develop software applications, such as Sohema, to sell to customers or partners for resale; and third, consulting, implementation, and support services vendors install the software and ensure that its adoption is successful. These services may be provided by software application vendors, partners, or other firms that have expertise deploying that software.

Figure 8: Software Publishing Industry Supply Chain

TPS currently focuses on the last two stages in the supply chain, selling software applications while providing consulting, implementation, and support services. Understanding the supply chain is useful, as TPS needs to determine whether it wishes to continue to participate in both stages, or narrow its scope to only one, by reselling a competitor's software application and charging for services.

Industry Dynamics

Understanding the dynamics of the software publishing industry requires reviewing the drivers of growth and the challenges faced by incumbent firms.

Growth Drivers

Revenue growth is being driven by a number of demand factors, including growth in developing countries, and widespread adoption of new computing platforms, such as smart phones and tablet computers. Because software performance is closely tied to improvements in the speed of semi-conductors and Internet connections, growth may also be attributed to rapid advancements in these areas. In addition, industry profitability has been improved by outsourcing software development to offshore firms in India and China that provide low-cost skilled labour (Thormahlen, 2010).

Challenges

Incumbents in the industry are threatened by software theft due to piracy, and by the growing maturity of free, open source software (FOSS). Other challenges include maintaining and improving software privacy and security, and challenging the emergence of cloud computing[1]. Cloud computing has enabled firms, such as Google, for example, to enter the software publishing industry by leveraging existing data centers as cloud computing platforms for the provision of software services (such as Google Docs, which competes with Microsoft Office). Cloud computing will also open new markets or expand existing ones, as the technology enables software publishers to lower their software delivery costs, making previously expensive software affordable for small businesses and consumers. TPS will have to address these challenges, and will need to consider the possibility of embracing cloud computing as a way of differentiating itself from other human services software products.

Financial Structure

The financial structure of the software publishing industry is characterized by both revenues and costs. This section also defines typical pricing methods used by software vendors.

Revenue

Software vendors generate revenues from a number of different sources, such as license fees, subscription fees, maintenance fees, support fees, training fees, and implementation and professional services fees. These may be characterized as either one-time or ongoing revenue

[1] Cloud computing encompasses technologies that enable the provision of centralized and scalable software resources that may be sold like utilities to other businesses or consumers in the form of software services.

sources (from the perspective of suppliers), and capital or operational costs (from the perspective of buyers).

One-Time / Capital	Ongoing / Operational
• **License fees:** where customers pay a one-time fee for the indefinite use of the software • **Training fees:** where customers pay for the provision of user training, typically on a per-day basis • **Implementation and professional services fees:** where customers pay for the cost of installing the software, performing any data conversion, and integrating the software with other software products	• **Subscription fees:** where customers pay for the ongoing use of the software, which may be hosted off-site, typically on a month-to-month basis • **Maintenance fees:** where customers pay for access to software fixes and enhancements, typically on an annual basis • **Support fees:** where customers pay for the right to access technical support resources to troubleshoot problems, typically on a per-incident or annual basis

Table 4: Methods of Generating Software Revenue

In the past, software vendors typically generated revenue via perpetual software license fees, resulting in high capital costs for buyers and volatile revenue for suppliers; however, the emergence of cloud computing has enabled a shift to predictable operational costs for buyers and stable revenue for suppliers, via charging ongoing software subscription fees.

Pricing

In terms of pricing, software vendors use traditional methods, such as cost per user, cost per installation, and cost per customer, along with newer methods, such as subscription-based or no cost. Modern methods are used by many software vendors that sell to businesses; however, vendors selling cloud computing services favour the subscription-based approach, while vendors who provide open source software favour the no cost approach, as they offer free software as an incentive to purchase their other services.

Traditional	Modern
• **cost per user:** where a fee is charged for each user accessing the software • **cost per installation:** where a fee is charged for each installation of the software (typically on a per-computer, per-server, or per-CPU basis) • **cost per customer:** where a fee is charged for an entire customer or enterprise	• **subscription-based:** where a fee is charged (typically per user) on an ongoing basis (usually monthly) for the right to access and use the software • **no cost:** where free software is provided in exchange for other revenue-generating opportunities, such as upgrades, support, and advertising

Table 5: Software Pricing Models

In the past, TPS has struggled to formulate a consistent pricing strategy. Although all of these pricing models are used in the human services software market, customers tend to prefer specific models over others, depending on the market segment being served, while cost-per-user models are favoured in cloud computing scenarios. TPS should determine which model is the most suitable based on its preferred software delivery model supported by additional research about customer buying preferences in the human services software market.

Costs

Software firms have three primary costs, excluding profit: employee wages, advertising and marketing, and research and development. The largest cost to software firms is labour in which 28.5% of industry revenue is allotted to the cost of employee wages, with the average employee earning a salary of $126,275 (Thormahlen, 2010). On average, software firms spend about 20% of their revenue on advertising, and 12% on research and development (Thormahlen, 2010).

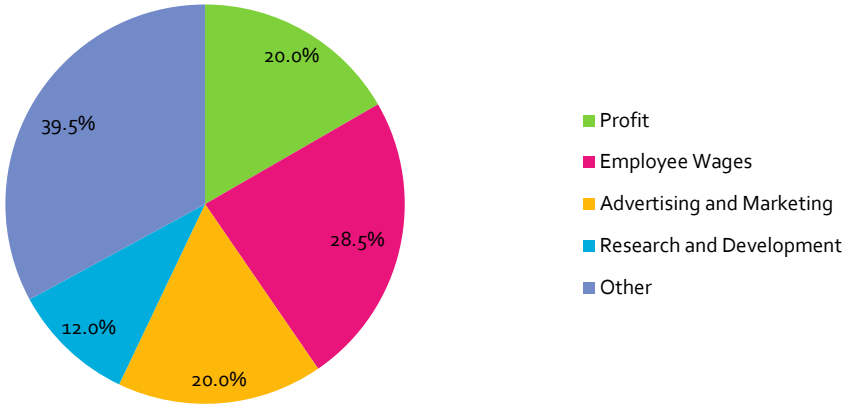

Figure 9: Cost Breakdown of Software Publishers (Thormahlen, 2010, p. 21)

A notable characteristic of the cost structure of the software publishing industry is the nature of its marginal costs. Software applications typically require significant initial investment before any revenues may be generated; however, once the software product is available for sale, the cost of producing new copies of the software are negligible, rapidly reducing the marginal cost per customer (Thormahlen, 2010). For TPS, this means that it should expect to make a high initial investment, while revenue is delayed, with the promise of low marginal costs once the new version of Sohema software goes to market.

Market Segmentation

The software publishing industry may be segmented in two primary ways: first, by the type of software (e.g. system or application software); and second, by the vertical industry for which the software is developed (e.g. manufacturing or finance and insurance). This approach reflects both the supplier and buyer side of the industry, respectively. This section aims to provide a better understanding of the way sellers and buyers segment the market.

Segmentation by Software Product Type

From a supplier's perspective, the software publishing industry is segmented by the type of software product being sold, differentiating between system software, application software, and software services of various kinds (Thormahlen, 2010):

- **System software:** includes operating system software, such as Microsoft Windows
- **Application software:** includes software such as Microsoft Office, Oracle database products, and Sohema
- **Software services:** includes IT consulting, custom software development, and training services

Application software may be further segmented by the underlying function of the software (Thormahlen, 2010) :

- **Business productivity and home use applications:** includes office productivity software (e.g. Microsoft Office), and graphic design applications (e.g. Adobe Photoshop)
- **Cross-industry applications:** includes customer-relationship management (CRM), enterprise resource planning (ERP), and accounting software
- **Vertical market applications:** includes applications built for specific industry verticals, such as banking software, airline reservation systems, and case management software (e.g. Sohema)
- **Utilities applications:** includes applications used to protect, troubleshoot, or perform specific tasks in batch (e.g. Norton Anti-Virus)
- **Other applications:** includes all other applications

The following charts describe the proportions of annual revenue generated by these segments, where the left pie chart depicts the proportions generated by the general industry segments, and the right pie chart depicts the proportion of revenue generated by each sub-segment of the application software market.

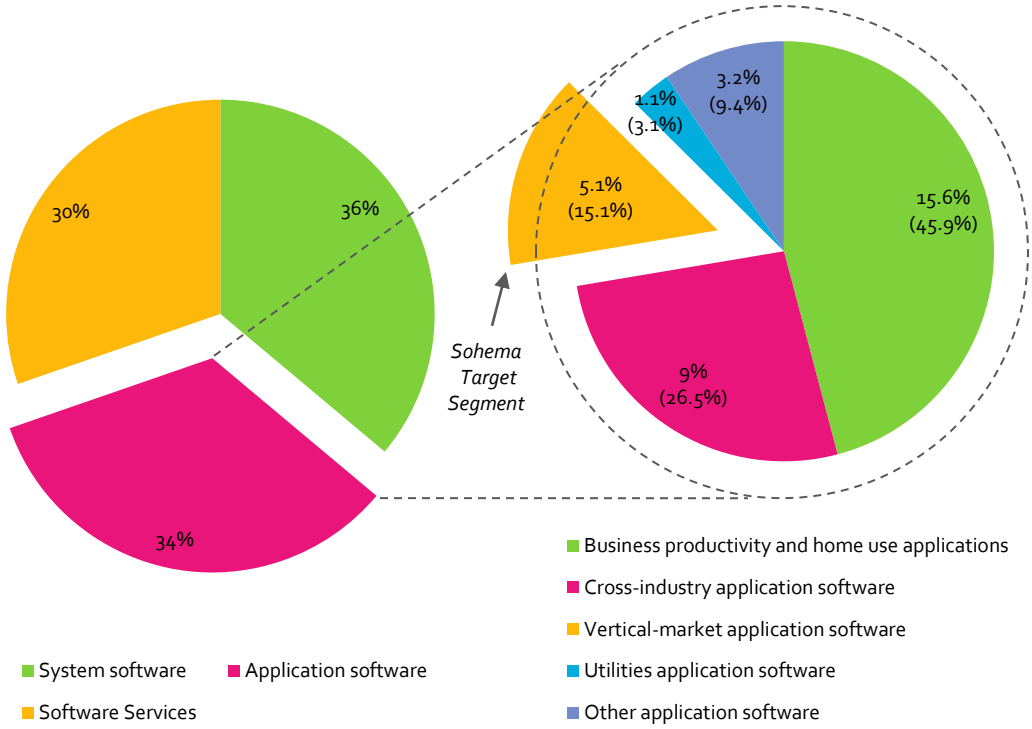

Figure 10: Segmentation of the Software Publishing Industry by 2009 Revenue (Thormahlen, 2010, p. 13)

The application software segment accounted for 34% of US software publishing industry's $150.7 billion annual revenue in 2009, with the vertical-market application software sub-segment accounting for 5.1% of the total, or approximately $7.69 billion. Sohema is categorized as vertical-market application software, so the $7.69 billion in revenue provides a starting point for calculating human services software market size in the following section.

Segmentation by Vertical Industry

From the buyer's perspective, the industry can be segmented by the vertical industries that purchase software. In 2007, the total spent by US businesses on both capital and operational software-related expenses was approximately $120 billion (Thormahlen, 2010). The following

chart provides a breakdown of the proportion spent by buyers in each vertical industry in the US.

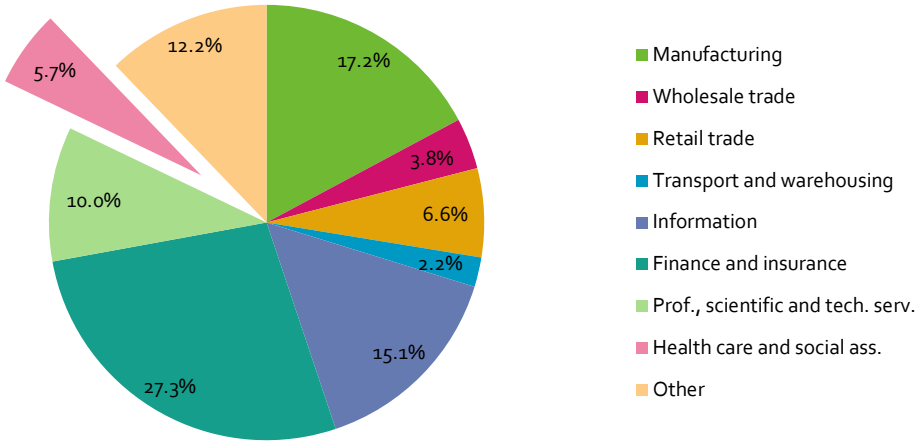

Figure 11: Proportion Spent by Vertical Markets on Software in 2007 (Thormahlen, 2010, p. 14)

Of most relevance is the health care and social assistance segment (Sohema's segment), accounting for 5.7% of the $120 billion spent on software in 2007, or approximately $6.8 billion (Thormahlen, 2010). The proportion of spending here will be used to calculate human services software market size in the following section. It must be noted that the health care and social assistance segment may be further segmented, first, by a major division between health care and social assistance, and second, within the social assistance segment by characteristics such as organization size and human services program area.

Sohema's Target Segment

Sohema's target segment can be identified by combining the segments defined in the previous two sections. The industry can be segmented first by the general type of software (e.g. system software, application software, and software services), then by sub-segments within the application software segment (e.g. vertical-market application software), and then finally by the target vertical industry (e.g. health care and social assistance) with the "Heath Care and Social Assistance Application Software" segment representing the target segment of Sohema. The following diagram depicts the relevant segments and sub-segments of software publishing industry in concentric rings.

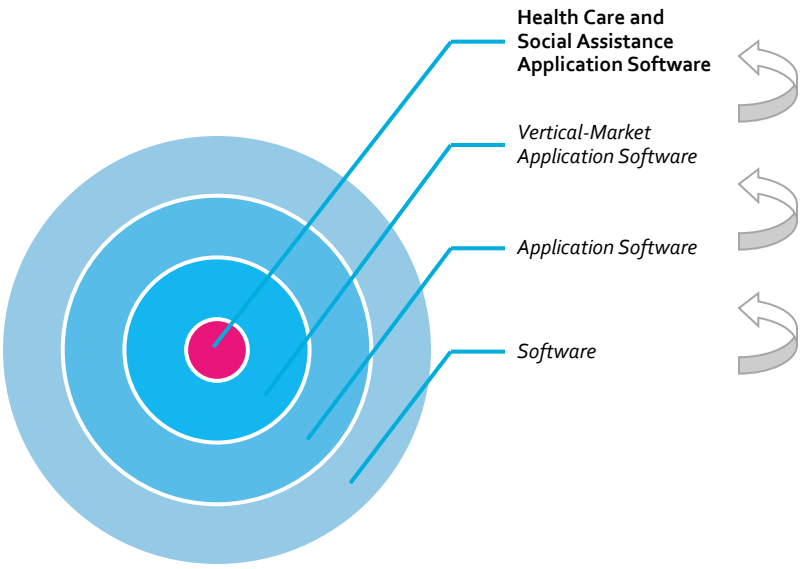

Figure 12: Segmentation Diagram Identifying Target Industry Segment

Market Size

Using the revenue and proportions provided in the previous sections, it is possible to provide a rough estimate of the health care and social assistance application software market size. Although data is being compared across two separate years (2007 and 2009), the calculation will provide us with a rough order of magnitude estimate that may be used for understanding the market opportunity. Given that $150.7 billion revenue is generated by the software publishing industry and $7.69 billion (5.1%) is generated by the vertical-market application software segment, the $7.69 billion value may be multiplied by the 5.7% spent by the health care and social assistance vertical segment, resulting in a total of $438 million being spent on health care and social assistance vertical-market application software annually.

Let:
S = R x A x H
Where:
R = total software publishing industry revenue
A = proportion generated by vertical market application software segment
H = proportion spent on software by health care and social assistance vertical industry
S = market size
Therefore, If:
R = $150.7 billion
A = 5.1%
H = 5.7%
Then:
S = $150.7 billion x 0.051 x 0.057; or $438 million

Figure 13: Health Care and Social Assistance Application Software Publishing Market Size Calculation

It is important to note that this value excludes spending on training and implementation services, both of which are provided by TPS and other vendors in the industry; incorporating spending on training and implementation services would increase this value.

Another way of estimating market size is by using publicly available data on non-profit spending. The following table summarizes calculations as presented in Appendix B.

	Agency Size			
	Small	Medium	Large	Very Large
Annual Income Range	< $500 k	$500 k - $2.5 m	$2.5 m - 10 m	> $10 m
Total Annual Income	$42,320,132,074	$98,757,166,964	$294,346,874,181	$407,197,597,424
IT Budget Spent on Software	$7,998,505	$26,664,435	$154,532,109	$344,489,167
TOTAL FOR ALL ORGANIZATIONS	$533,684,216[1]			

Table 6: Market Size Calculations Based on Annual Non-Profit Revenue

This estimate is based on data from the National Center for Charitable Statistics (NCCS, 2010), GuideStar (GuideStar, 2010), and NTEN reports (Bernard & Dr. Pukstas, 2010). Most importantly, the amount of $534 million calculated above is of the same magnitude as the $438 million amount estimated using the previous formula, thereby confirming the previous calculation. By rounding the original estimates down and up to the nearest $100 million, respectively, the annual market size can be estimated as being between $400 million to $600 million. However, the market size may be even larger, as a single human services software vendor generated $65 million in revenue in 2007 (Mulligan, 2007); so, given low industry concentration, which implies many other similar vendors, it can be assumed that the market size is at least at the upper end of the range, rather than the lower. Furthermore, $600 million amounts to roughly 0.5% of the annual human services industry revenue of $124 billion, indicating that the market size potential may be even larger, as private corporations typically spend between 1.5% to 2% of their revenue on IT software and services (NPower, 2009). Given that TPS generated the $2.4 million in software product revenues in 2009 (only 0.4% of market share), the potential market size of over $600 million annually and low industry concentration represents a strong financial opportunity for the company.

[1] This estimate does not include spending by government or for-profit organizations, which would further increase the value.

Section Summary and Conclusions

The analysis of the software publishing industry provides key insights that may be used by TPS to formulate its software product business strategy and prepare financial forecasts:

- Industry revenue is forecasted to grow and concentration is low in Sohema's industry segment, indicating potential opportunity.
- The software publishing industry is also undergoing rapid change, with new technologies and business models providing opportunities and threats to existing vendors and new vendors alike; these threats should be firmly understood (e.g. free open-source software) and opportunities carefully considered (e.g. cloud computing) when formulating the Sohema software product strategy.
- There are a variety of revenue sources and pricing methods available to software vendors; it is important that TPS determine which sources and methods are appropriate for the human services software market, and which fit best with TPS' cash flow requirements.
- The annual industry average profit is 20%, and annual spending on research and development is 12%; TPS should consider its profit expectations and research and development spending in comparison the industry average, and use these figures in its financial planning.
- In terms of market size, the health care and social assistance application software market is estimated at approximately $600 million, indicating a large market in comparison to the revenue currently generated by TPS' products.
- Finally, TPS should consider its position on the supply chain, deciding whether to focus on selling application software, implementation services, or both.

Although these insights and considerations are useful for planning, more information is required to determine how to build a product that is valuable to potential buyers. The next section focuses on the buyer side of the human services software market: the human services industry.

4.2 The Human Services Industry

The human services industry is defined as the collection of social services organizations responsible for helping society's most vulnerable members, including the elderly, the disabled, children, abused women, substance abusers, the jobless, and the homeless. For the purposes of this report, "human services" is synonymous with other terms commonly used to describe this industry, such as "social services, social protection, welfare or social security" (Duggan, 2005, p. 7). Human services are, however, distinct from health or medical services, which focus primarily on the physical well-being of the individual. Human services have a broader scope, focusing on the mental, social, and financial wellbeing of the individual, family, and community at large. This section begins with an overview of the industry and its current dynamics, followed by a description of the industry financial structure, and market segments, with an aim to providing TPS with a better understanding of human services industry challenges.

Industry Overview

The human services industry is comprised of organizations that offer "programs that support the personal and social development of individuals and families; provide care, protection and supervision; and enhance the individual's independence and ability to manage his or her own resources" (NCCS, 2003, p. 47) and may be delivered by non-profit, for-profit, and government organizations alike. Human services organizations include well-known charities, such as the YMCA, YWCA, Big Brothers, Big Sisters, and the Red Cross, large government organizations, such as the US Department of Health and Human Services, and individual practitioners, such as family counsellors. In the non-profit sector alone, there are over 1.2 million human services organizations in the United States (NPower, 2010, p. 6).

Despite cutbacks in funding in some program areas (e.g. spending on child welfare dropped 6.3% in 2008) (Butler, 2009, p. 6), the industry generated over $124 billion in revenue in 2009, excluding government organizations (U.S. Census Bureau, 2009). The following section describes these specific program areas, many of which have differing scopes of operational and business needs.

Human Services Program Areas

The human services industry is very diverse, with organizations of all sizes providing specialized programs to individuals, families, and communities with varying degrees of need. As a result, the human services industry is comprised of the programs listed in the following box.

- **Family and Income Support:** temporary support for families and income support for those not working
- **Employment:** services and support for those who are temporarily unemployed
- **Public Health Insurance:** insurance for the cost of health care
- **Public Pensions:** income support for retired citizens
- **Child Welfare:** adoption, foster care and child protection services
- **Workers' Compensation and Disabilities:** services and income support for temporary or long-term disabilities
- **Child Support Enforcement:** services to enforce the payment of child support
- **Public Health:** mental health and substance abuse services

Table 7: Human Services Industry Segments According to IBM (Duggan, 2005)

Many of the program areas such as family and income support, and public pensions, are provided by federal- or state-level agencies, with a focus on monetary compensation to address social needs. These organizations typically purchase enterprise software solutions or develop their own solutions to address their particular requirements. Smaller organizations at the regional or municipal levels, however, provide child welfare and public health services which represent opportunities for software vendors selling simpler more cost effective software solutions, like Sohema.

Industry Dynamics

The human services industry is unique in the sense that most of the organizations participating in the industry are government or non-profit organizations that receive funding through government grants, private donations, or service fees. As a result, changes in economic conditions directly influence the amount of funding available, as businesses and individuals are less inclined to donate money during hard economic times.

The recent economic recession in the US economy had a negative impact on the human services industry, which meant that organizations were forced to do more with less. Although each program area within the industry must deal with its own specific challenges, decreases in funding have led to an industry-wide shift in focus towards (Duggan, 2005):

- improving overall operational efficiency;
- meeting new funding accountability measures;
- reducing fraud; and,
- finding new ways to raise funds in an increasingly competitive environment.

Other factors that are affecting overall industry dynamics include (Duggan, 2005; NPower, 2010):

- shifting demographics, specifically with an aging population and a higher proportion of immigrants;
- rising unemployment and increasing demand for human services; and,
- new or changing regulatory mandates, which may require major changes to business processes and software systems.

Successful human services software will have to respond these challenges, implementing solutions to reduce costs through improved operational efficiency, while providing flexibility through optimal configurations able adapt to changing customer requirements.

Financial Structure

Because most of the organizations in this industry are non-profit, their focus is on securing funding and controlling costs. This section describes the typical funding models and cost structures of the human services industry. Unlike the analysis of the software publishing industry, pricing models are excluded here as this analysis focuses on the buyer side of the market.

Funding

Funding for this industry consists primarily of contributions (i.e. charitable donations), government grants, fees collected when delivering services, capital gains associated with investments, and fundraising activities. The proportion of funding sources differs depending on the type and size of organizations. For example, small organizations rely more on contributions

from individuals or businesses; whereas, very large organizations rely more on funding from fees associated with delivering services[1] .

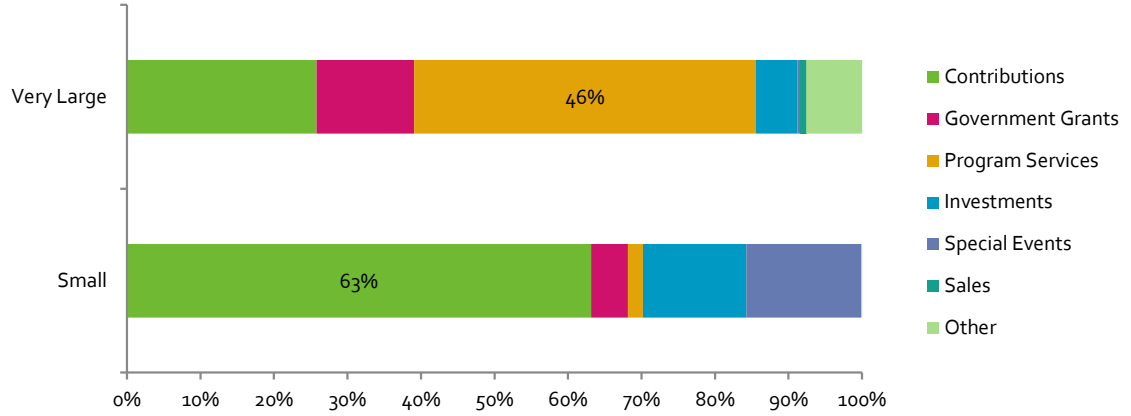

Figure 14: Proportion of Funding for both Small and Very Large Non-Profit Human Services Organizations

Variations in sources of funding result in differing requirements that fit within particular budgetary constraints while, at the same time, addressing the organization's particular software needs. For example, smaller organizations that rely on contributions will need software to track a high volume of contributions, whereas very large organizations will need software to invoice for and collect service fees. As TPS defines its Sohema product strategy, it should consider these differences where determining product requirements.

Costs

Organizations in the industry typically incur costs related to wages, general administration, and fundraising. Specific cost allocations vary from program area to program area, although some general benchmarks provide insight. For example, organizations in the non-profit child welfare segment have a cost breakdown as depicted by the following pie chart.

[1] The data presented here represents a random selection of 50 non-profit organizations from the GuideStar statistical database.

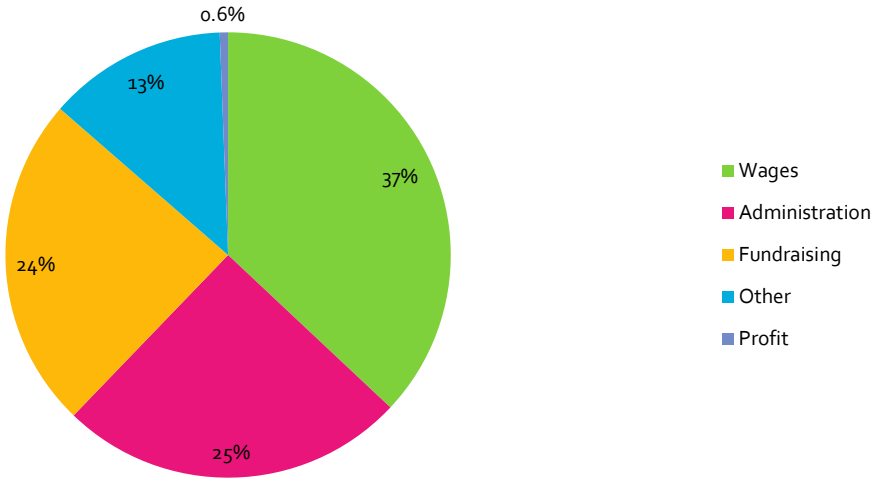

Figure 15: Cost Breakdown of Non-Profit Child Welfare Organizations (Butler, 2009, p. 18)

As this is a service-oriented industry, a similar pattern emerges among each industry segment, in that wages consume the majority of revenue, followed by administration costs (which include facility rentals, advertising, and IT costs), and finally, fundraising costs. In fact, over $48 billion was spent on wages alone in 2007, employing almost 2.5 million people (U.S. Census Bureau, 2009). Finally, the data demonstrate that profits are typically low in this industry (less than 0.6% in the child welfare segment) because most of the organizations are government or non-profit organizations. Given wages consume a high proportion of industry costs, a software solution that improves operational efficiency by reducing the cost of labour would be valuable to buyers in this industry.

Market Segmentation

The human services industry may be segmented by several factors, including such factors as: program area; the type of organization; organization size; and, geographical area (Naughton-Travers, 2010b). The following table provides examples each segmentation factor.

Factor	Examples
Geography	• USA • Canada • UK • Australia
Organization Size	• Very Large • Large • Medium • Small
Organization Type	• Public • Private
Program Area	• Child and Youth Services • Family-Based Services • Residential Care

Table 8: Segmentation Factors of the Human Services Industry

These segmentation factors affect the business requirements of human services organizations in differing ways. From the perspective of geography, each country and its sub-national entities (i.e. states or provinces) operate their human services programs differently, largely as the result of country-specific regulations. For example, domestic adoptions are typically managed at the provincial-level in Canada, but often at the county level in the US. Organizations of different size differ in their business challenges, with smaller organizations focusing on basic information management and fundraising, and larger organizations focusing on operational efficiency and performance management. Public and private organizations typically differ in relation to their scope of practice (e.g. federal- or state-level versus county or municipal level), implying differing requirements for software to interface with other information systems. And finally, organizations providing different programs have unique requirements to deal with specific information management processes, such as collecting birth family information for adoptive children, or electronically enrolling substance abuse patients in treatment programs. Because TPS has chosen to focus on the US human services industry, the geographic factor may be ignored, but organization size, organization type, and program area are still relevant to understanding and segmenting the human services industry.

Section Summary and Conclusions

The human services industry is comprised of over a million organizations, both large and small, aiming to improve the quality of life for those in need, addressing issues such as homelessness, addiction, and mental illness; as a result, human services organizations provide a variety of

different programs and services. Yet although these programs vary in content and target population, the organizations that provide them share business functions and service delivery processes, which represent opportunities for the generic software solutions described in the next section.

From a financial perspective, the human services industry generates annual revenue that is comparable to the software publishing industry; however, almost all of this revenue is spent on operational costs, reflecting the non-profit status of most organizations operating in this industry. Due to funding cutbacks and the high proportion of costs allocated to wages, TPS should consider software solutions that improve operational efficiency, while addressing each of the other challenges faced by this industry, such as reducing fraud and meeting accountability measures. In addition, organizations of differing size generate revenue from different sources, implying that TPS should also ensure that its software features meet the needs of the size of organization it is targeting. Finally, the high proportion of costs in relation to wages further emphasizes the need for better operational efficiency, possibly via software automation. The Sohema product strategy should consider all of these factors to help buyers in the industry face their business challenges. The following section will focus specifically on the human services software market, providing a better understanding of human services software needs and the competitive landscape.

4.3 The Human Services Software Market

The human services software market is that sub-segment of the software publishing industry that targets human services organizations with vertical application software. One of the aims of this strategic analysis is to obtain a good understanding of markets needs to guide future strategic direction and product requirements. This section will begin with a review of market characteristics and needs, followed by a definition of market segments, and a review of the competitive landscape.

Market Overview

Human services organizations purchase a variety of software products and services to address their operational needs. Like most other businesses, they use standard system software for their computers (such as Microsoft Windows or Linux) and office productivity software (such as

Microsoft Word) to perform everyday tasks. Many organizations have similar requirements for managing human resources and accounting, ranging from smaller organizations using simple spreadsheets or Intuit QuickBooks for accounting (Ross, 2010) to larger organizations using accounting packages such as Microsoft Dynamics GP (formerly Great Plains) (Naughton-Travers, 2010b). Most buyers in the market, however, are looking for software solutions that support more sophisticated business functions and processes. The following section defines the software solutions typically required by these buyers, along with the business functions and processes that these software solutions support.

Software Needs

Although human services organizations differ in their specific program area, they share common software needs due to similar business functions. Four types of software solutions are typically employed to support these business functions:

- **Case management software:** used to track clients of the human services organizations and the services provided to these clients over time. A "case" is an account of all of the activities involved in providing service to a client, which are provided in multiple stages known as the "case management process". Sohema is an example of case management software. For a description of the case management process, see Appendix C.
- **Financial management and accounting software:** used to perform billing and accounting. Intuit Quicken and Microsoft Dynamics GP (formerly Great Plains) are examples of this type of software.
- **Reporting software:** used to generate reports that measure the effectiveness of the program and the volume of service provided. Microsoft SQL Reporting Services and SAP's Crystal Reports are examples of this type of software.
- **Fundraising, social media, and constituent management software:** used to generate awareness, raise funds, and manage constituents, which are individuals or organizations that provide contributions or volunteer their services. Blackbaud's Raiser's Edge and Convio's Common Ground are examples of software products for fundraising and constituent management.

These solutions may be used to support the business functions and processes defined the next two sections.

Supporting Business Functions with Software

The following figure is a reproduction of the IBM Social Component Business Map, which depicts how the common business functions of human services organizations relate to organizational competencies (the column headings) and levels of accountability (the row headings).

<table>
<tr><th></th><th>Social Policy</th><th>Program Development</th><th>Outreach</th><th>Relationship Management</th><th>Case Management</th><th>Program Financial Management</th><th>Compliance and Integrity</th><th>Business Services</th></tr>
<tr><td rowspan="2">Policy and Strategic Planning</td><td>Policy setting and governance</td><td>Policy interpretation and legislation support</td><td rowspan="2">Campaign planning</td><td>Service provider strategy</td><td rowspan="2">Service and case modeling</td><td>Collection strategy</td><td>Risk universe</td><td>Financial strategy</td></tr>
<tr><td>Partnership and community engagement</td><td>Integrated program development</td><td>Client engagement strategy</td><td>Payment strategy</td><td>Compliance and integrity strategy</td><td>HR strategy</td></tr>
<tr><td rowspan="4">Oversight and Accountability</td><td rowspan="3">Outcome evaluation and performance analysis</td><td rowspan="3">Product design</td><td rowspan="3">Campaign design</td><td rowspan="3">Service provider planning, budgeting, and monitoring</td><td>Case supervision</td><td>Program accounting</td><td rowspan="4">Compliance and integrity control</td><td>Financial management</td></tr>
<tr><td>Performance and outcome management</td><td rowspan="2">Funds management</td><td rowspan="2">HR management</td></tr>
<tr><td>Activity management</td></tr>
<tr><td rowspan="2">Strategic planning</td><td rowspan="2">Product administration</td><td rowspan="2">Campaign administration</td><td rowspan="2">Provider performance management</td><td>Appeals</td><td rowspan="2">Banking arrangements</td><td rowspan="2">IT management</td></tr>
<tr><td>Document management</td></tr>
<tr><td rowspan="5">Service Delivery</td><td rowspan="2">Analysis and forecasting</td><td rowspan="5">Product implementation and capability management</td><td rowspan="3">Prospect management</td><td>Recording, licensing and contracting</td><td>Benefit/service eligibility and calculation</td><td>Program account reconciliation</td><td>Compliance and integrity assessments</td><td rowspan="2">Financial delivery</td></tr>
<tr><td rowspan="2">Intake registration</td><td rowspan="3">Benefit/service planning and delivery</td><td>Collections</td><td rowspan="2">Risk detection, prevention, and reporting</td></tr>
<tr><td>Payments</td><td>HR delivery</td></tr>
<tr><td>Community building</td><td rowspan="2">Marketing and advertising</td><td>Screening and referrals</td><td>Debt collection</td><td>Quality assurance</td><td rowspan="2">IT delivery</td></tr>
<tr><td></td><td>Communications</td><td>Performance measurement</td><td>Banking operations</td><td>Remediation</td></tr>
</table>

Figure 16: The IBM Social Component Business Map (Fiorentino, Duggan, & Berman, 2008, p. 12)

The business component map organizes the distinct business functions of a human services organization so that they may be easily mapped to one or more software solutions. Using the IBM Social Business Component map as a guide, components within the map have been color-coded according to the legend provided to indicate the kinds of software solutions typically used to support those business functions.

Case Management Software

Financial Management and Accounting Software

Reporting Software

Fundraising, Social Media, and Constituent Management Software

	Social Policy	Program Development	Outreach	Relationship Management	Case Management	Program Financial Management	Compliance and Integrity	Business Services
Policy and Strategic Planning	Policy setting and governance	Policy interpretation and legislation support	Campaign planning	Service provider strategy	Service and case modeling	Collection strategy	Risk universe	Financial strategy
	Partnership and community engagement	Integrated program development		Client engagement strategy		Payment strategy	Compliance and integrity strategy	HR strategy
								IT strategy
Oversight and Accountability	Outcome evaluation and performance analysis	Product design	Campaign design	Service provider planning, budgeting, and monitoring	Case supervision	Program accounting	Compliance and integrity control	Financial management
					Performance and outcome management	Funds management		HR management
					Activity management			
	Strategic planning	Product administration	Campaign administration	Provider performance management	Appeals	Banking arrangements		IT management
					Document management			
Service Delivery	Analysis and forecasting	Product implementation and capability management	Prospect management	Recording, licensing and contracting	Benefit/service eligibility and calculation	Program account reconciliation	Compliance and integrity assessments	Financial delivery
				Intake registration	Benefit/service planning and delivery	Collections	Risk detection, prevention, and reporting	
						Payments		HR delivery
	Community building		Marketing and advertising	Screening and referrals		Debt collection	Quality assurance	IT delivery
				Communications	Performance measurement	Banking operations	Remediation	

Figure 17: Software Solutions Overlaid on the IBM Social Business Component Map

Given there are four distinct solutions to address the core set of business functions in the component map, the implicit possibility of integration requirements emerge, meaning that many organizations will need to share data across each software solutions. As a result, software vendors like TPS should consider how they plan on addressing this integration challenge, either through extending the Sohema feature set to include features in other solutions, or engage in partnership strategies to ensure Sohema software can share data directly with software from other vendors.

Although the component map describes the business functions that may be supported by software solutions, it does not describe the product features that buyers expect in the human services market. The next section describes expected features, specifically for case management software products.

Expected Product Features

Most buyers in this market look for case management software products that have a minimum feature set, which is offered by almost every competitor. At a minimum, to ensure TPS success in entering the market, the Sohema product will need to support the features listed in the following table.

- Registration and Client Management
- Intake and Referrals
- Eligibility and Entitlement Calculation
- Assessments and Surveys
- Outcomes / Performance Management
- Decision Support and Evidence-Based Practice Recommendations
- Workflows and Approvals
- Billing and Sub-Ledger Accounting
- Scheduling
- Tasks and Reminders
- Agency Management
- Provider Management and Credential Tracking
- Bed Management
- Scanning and Document Management
- Form Letters / Mail Merge
- Reporting (Static and Ad-Hoc) and Dashboards
- User-Configuration (i.e. add new fields to forms)
- Role-Based Security
- Data Auditing (e.g. Change and Access Logs)
- Integration with Accounting and Human Resources Software

Table 9: Minimum Human Services Software Feature Set (Naughton-Travers, 2010b)

This feature set will be used in the Strategic Analysis chapter to perform a product feature gap analysis, allowing TPS to understand the extent of work required to ensure the product is minimally competitive. And while having the minimum feature set is required for successful market entry, buyers select their products based on other attributes. A recent survey from the Non-Profit Technology Network (NTEN) identifies the most valuable software attributes to non-profit buyers of software, as depicted in the following pie chart.

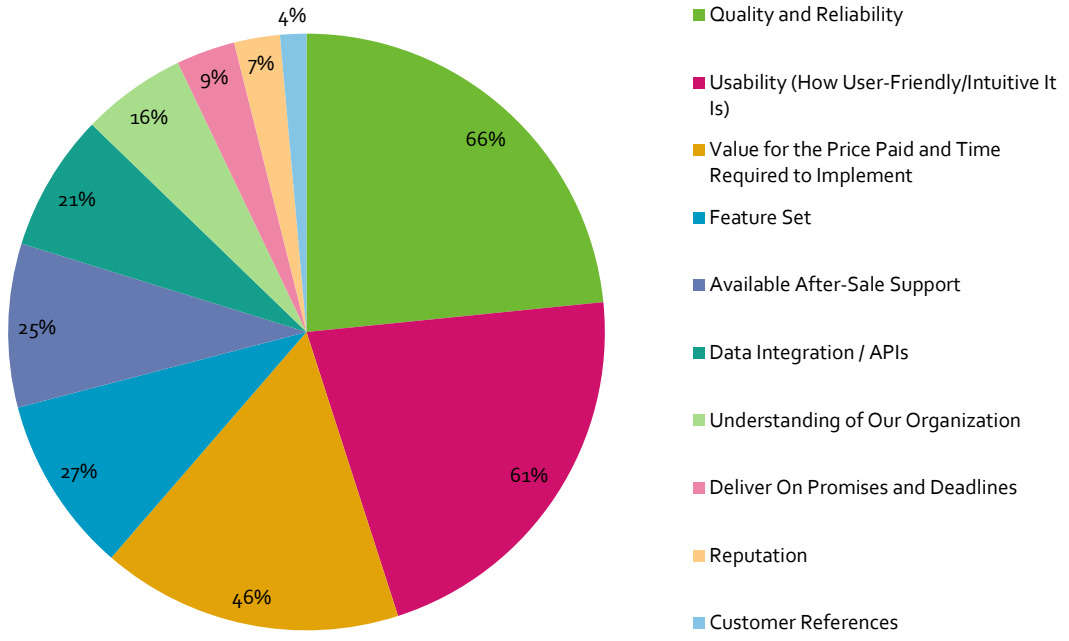

Figure 18: Results of NTEN Survey Indicating Desirable Software Product Attributes (Ross, 2010, p. 8)

Quality and reliability, usability, value, and feature set topped the list of desirable attributes, indicating either dissatisfaction or high standards set by incumbent solutions. These attributes are defined in the following way:

- **Quality and reliability:** the absence of software defects
- **Usability:** how easy it is to use the software
- **Value:** how many features are provided for the price paid
- **Feature Set:** the breadth and robustness of the features provided

Reputation and customer references were at the bottom of the list, along with delivering on promises and deadlines, which may be the result of low expectations, set by incumbents. As a result, TPS should ensure that the Sohema product strategy focuses on the top four favoured software attributes, and particularly quality and usability, the two attributes that are important to the majority of customers.

Product Alternatives

Given that human services organizations have tight budgets, they often consider alternatives to the software solutions described in the previous sections. Small-sized organizations typically have little money to spend on software, and commonly resort to using Microsoft Excel spreadsheets, Google Docs, custom-built Microsoft Access databases, or even paper forms. Mid- to large-sized organizations may look to free open source software (FOSS), like CiviCRM, or use EMR/EHR products developed for the health care industry. Very large organizations may develop their own custom solutions, or in the case of the public sector, use a transfer system, which is effectively a custom system used by another government organization that is copied and transferred to those that require it. The key point here is that human services organizations have alternatives to the products sold in this market, and that these alternatives, such as free open source software solutions, or EMR/EHR solutions from the health care industry, threaten to undermine vendor revenues or increase competition, respectively.

The next section explores how existing vendors serve buyers in the human services market through the provision of different types of human services software solutions.

Competitive Landscape

The human services software market has attracted a wide range of suppliers that provide software solutions to manage clients and cases, including CRM software, EMR/EHR software, and case management software. There is considerable overlap between these three types of software solutions, as each can track client information, manage documents and correspondence, protect sensitive data with security controls, and be configured to address unique requirements. Each solution, however, specializes in a particular business function. Case management software is focused on the case management process and managing the delivery of services; CRM software is focused on managing relationships with customers or constituents; and, EMR/EHR software is focused on maintaining comprehensive health records and related documentation.

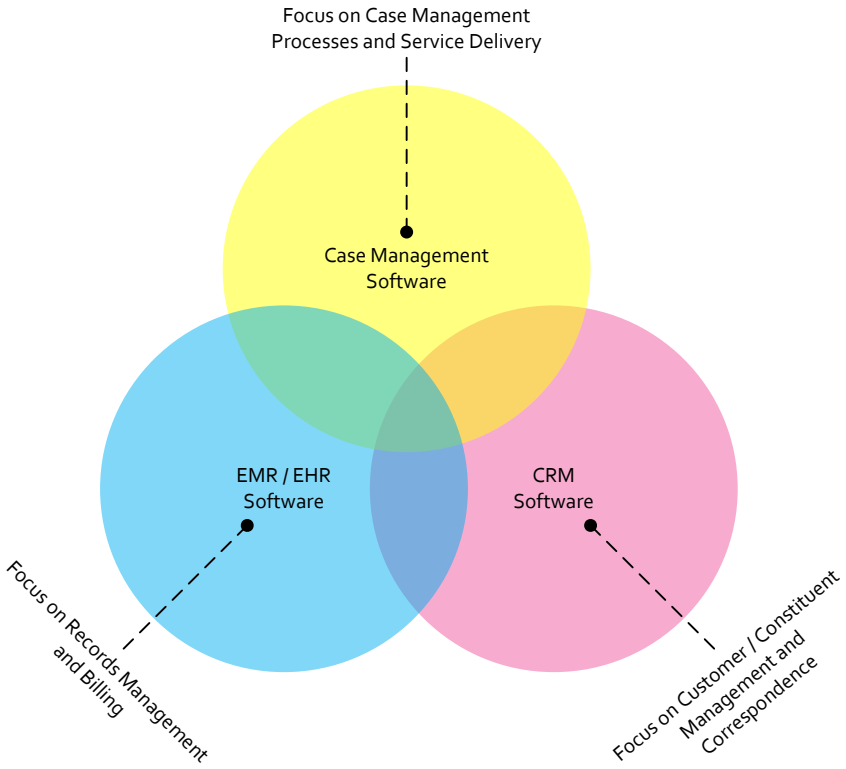

Figure 19: Overlap of Software Solutions in the Human Services Software Market

Due to this overlap, some competitors operate in more than one industry. Competitors such as UNI/CARE have been selling EMR/EHR software to the human services software market for over 30 years, while others such as Qualifacts have entered in the last 5 years. Vendors, such as Kaleidacare and Harmony, provide niche-focused case management software products while industry giants, like Microsoft and Oracle, position their existing CRM and enterprise software suites for this market. New entrants, such as SalesForce.com, copy Microsoft and Oracle's strategy at the low-end of the market, offering low-cost, CRM cloud computing software, while industry leader Cúram strides comfortably ahead of the pack in the upper-end of the market with its human services enterprise software framework (Leganza, 2009). Although all of these vendors sell to the same human services software market, they may be organized based on their respective product strategies, relating specifically to the degree of vertical (or domain-specific) functionality they provide (e.g. managing beds in care facilities, billing insurance providers for services provided), and the degree of flexibility offered by their products (e.g. user-configurable business rules, integration with other software). By shedding the terminology such as "CRM", "EMR/EHR" and "case management", it is possible to compare these vendors and their products

more directly within one of five “strategic groups”: Generic Enterprise Software Suites, Cloud Computing Platforms, Human Services Software, Niche-Focused Human Services Software, and Human Services Enterprise Software.

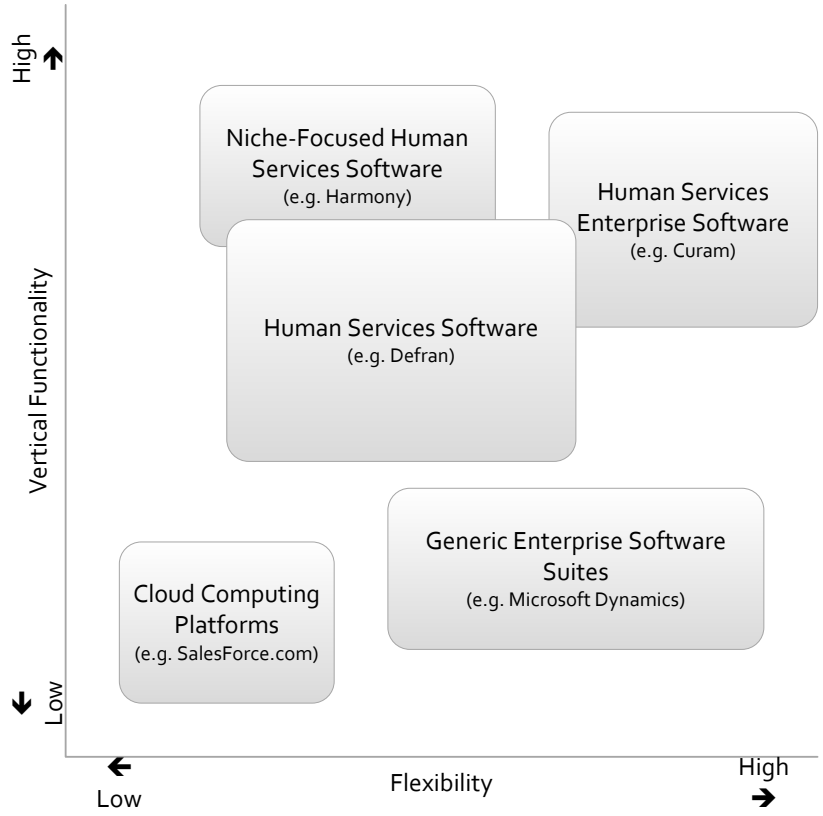

Figure 20: Human Services Software Market Competitors Organized Into Strategic Groups

The next several sections describe each strategic group, explaining their position on this map, and identify sample competitors.

Generic Enterprise Software Suites

Vendors such as Microsoft, Sage, Oracle, and SAP sell enterprise software products that address a wide range of business needs, such as accounting, human resources, manufacturing, retail, project management, customer relationship management, and reporting.

Sample Competitor: Microsoft

Dynamics CRM is Microsoft's flagship customer-relationship management product. Like many other competitors in this strategic group, Microsoft has repositioned this product as a flexible form of client and case management software. This is due to analogous functionality between CRM software and case management software, in that both deal with people, cases, contacts, documents, and workflows. Part of Microsoft's positioning strategy is to push a concept known as "xRM", or "Anything Relationship Management", demonstrating the flexibility of their Dynamics CRM platform across multiple industry verticals. Yet despite its flexibility, Microsoft has not invested in developing vertical-specific functionality for the human services sector, relying on partners to provide this functionality, or for each client to customize the product as needed. As a result, the cost of implementing the software may be much higher than the license cost, with the added risk of managing a complex configuration and customization project. As a result, Microsoft seems to target medium- to large-sized organizations that have the budget to pay for implementations with their on-premise solution.

Often these software products are referred to as Enterprise Resource Planning (ERP) software packages. Vendors in this strategic group have re-positioned ERP software packages as solutions for the human services software market. Licenses are usually purchased on a one-time, perpetual basis, with optional annual maintenance fees. These solutions frequently do not contain functionality specific to the human services industry and, consequently, sales, analysis, configuration, implementation, and support of the software are performed by partners with human services domain expertise, who sell their services separately. In addition, these solutions can be further enhanced with other custom software components developed by established partners. As a result, this strategic group scores low on the vertical functionality measure but moderately high on the flexibility measure.

Cloud Computing Platforms

Vendors such as SalesForce.com and Microsoft Dynamics CRM Online also re-position their existing CRM software services; however, they typically target medium to small-size organizations with low-cost, month-to-month subscriptions.

Sample Competitor: SalesForce.com

SalesForce.com provides one the world's most notable cloud computing software products, its flagship SalesForce CRM application. But SalesForce.com is not simple a CRM application; it is an entire software platform that may be configured and customized using proprietary tools, APIs and their own computer language, APEX. Given this flexibility, SalesForce.com also provides the underlying platform, known as Force.com, to partners that wish to implement their own vertical solutions. Although no prominent case management software application has been developed on Force.com, SalesForce.com has shown interest in the human services software market. They currently offer up to 10 user licenses to non-profit organizations free-of-charge (SalesForce.com, 2010), hoping to gain traction in this market via customer lock-in due to high switching costs.

Although no vertical functionality is provided, sales are automated and implementation is performed by customers, using simple configuration tools. These platforms can also be extended with custom software components provided by recognized partners. As a result, this strategic group scores low on the vertical functionality measure but moderate on the flexibility measure.

Human Services Software

Vendors such as Defran, UNI/CARE, and Qualifacts sell generic case management software products targeted at all or most program areas in the human services industry. These vendors have public and private sector customers of all sizes, sometimes in multiple geographic markets. These products are not typically sold to federal or state-level public organizations, but rather to county or municipal public organizations, along with large non-profit organizations and human services providers (Naughton-Travers, 2010b). These software solutions contain a wide breadth of vertical-specific functionality, which significantly reduces configuration costs associated with Generic Enterprise Software Suites or Cloud Computing Platforms, while at the same time, these software solutions provide configuration tools for making changes to the software. As a result, this strategic group scores moderately high on both the vertical functionality and flexibility measures. Sohema is an example of Human Services Software.

Sample Competitor: Defran
In business for over 20 years, Defran is a leader in the mental health and child welfare segment. Defran provides case, clinical and financial management software for human services organizations. Its Evolv-CS product may be installed locally and used via a hosted software model.
Sample Competitor: Community TechKnowledge (CTK)
Founded in 1999, CTK has over 6,000 customers using its Online Data Manager product, with over 250,000 active users. Similar to Defran, CTK positions its product as case management and outcomes software for mid-sized to large human service organizations. CTK software has been widely adopted within the United Way, and across many different human services program areas.

Licenses are purchased on a one-time, perpetual basis, with optional annual maintenance fees. The vendors that sell the software also provide some consulting and implementation services, along with support.

Niche Case Management Software

Vendors such as Harmony Information Systems and Kaleidacare have a similar strategy to those in the Human Services Software group. They focus, however, on select segments within the human services industry, embedding product-specific functionality into their product with the intent of dominating a specific market niche.

Sample Competitor: Harmony Information Systems
In the past, Harmony Information Systems sold its case management software product to the general human services software market; however, recently it chose to focus specifically on select niches within the market. As a result, Harmony launched Harmony for Aging, an integrated health and human services management product targeted to the growing aging services segment of the human services market.

Specialization can sometimes result in inflexibility; as a result, this strategic group scores high on the vertical functionality measure but a little lower on the flexibility measure, in comparison to the Human Services Software group.

Human Services Enterprise Software

Finally, vendors such as Cúram and Lagan sell powerful software frameworks that may be extended by purchasing pre-built modules with domain-specific functionality.

Sample Competitor: Cúram
Founded in 1990. Cúram software sells a comprehensive range of human services software solutions based on their Cúram Software framework. Cúram positions its product as Social Enterprise Management (SEM) software, with a focus on enterprise or large- to very-large-sized human services organizations.

These frameworks are very complex and require programmers and project teams with specialized knowledge to perform implementations. Typical customers are state or federal government organizations. Although there are some similarities to Human Services Software, the main differentiators are scalability and customizability. As a result of the deep vertical functionality and flexibility, this strategic group scores high on both the vertical functionality and flexibility measures.

Market Attractiveness

Vendors selling to the human services software market have a variety of competitive forces to contend with that influence the attractiveness of the market. This section presents a basic

analysis of those forces using Michael Porter's Five Forces framework as a guide (Porter, 2008), which defines five specific forces that influence competition in a given market or industry:

1. **supplier power:** which determines influence that suppliers exert over vendors;
2. **buyer power:** which determines the influence that buyers exert over vendors;
3. **threat of entry:** which determines how easily new vendors may enter the market;
4. **threat of substitutes:** which determines how easily other products may be used in place of the products sold in the market; and,
5. **industry rivalry:** which determines the extent of competition between existing vendors in the market.

Supplier Power of Software Framework Vendors

Suppliers in this market are other software publishing companies, such as Microsoft and Oracle selling software frameworks, tools, and components used by vendors to build their human services software products. Human services software vendors, however, do not purchase in groups, giving suppliers greater power. Additionally, software framework switching costs can be high, as software code is rarely transferable to other software frameworks. However, software framework suppliers typically give away their software for free or at a reduced rate in order to encourage use of their overall platform. Given that suppliers have a similar number of advantages and disadvantages, supplier power is moderate.

Buying Power of Human Services Customers

Human services organizations do not have as much power in this market, as they rarely form alliances to improve their purchasing power and are usually incapable of developing their own software. Furthermore, price comparisons are difficult as vendors withhold pricing information; however, most buyers are required to abide by regulations that dictate transparent procurement processes, which force vendors to compete openly with each other. Finally, switching costs between software solutions is high for buyers, due to different ways of storing data and defining business rules across each solution. Given that buyers are mostly at a disadvantage, buyer power is low.

Threat of Entry from Other Software Vendors

Software vendors wishing to enter the human services software market face several challenges. First, since some vendors have been selling to the market for over 30 years, their products are mature and possess a broad feature set that new entrants must match in order to compete. Second, since human services organizations are varied in their focus, they require broad domain expertise from vendors, implying additional investment and experience. Third, regulatory barriers exist in the child welfare segment of the US human services industry, requiring additional investment by new vendors to be compliant. However, each of these challenges may be overcome with capital, allowing vendors with access to venture capital or deep capital reserves to dedicate to research and development, and product marketing, to enter the market with little resistance[1]. Given that advantages and disadvantages are roughly equal in number, the threat of entry from other software vendors is moderate.

Threat of Software Substitutes

As mentioned in the Product Alternatives sub-section, there are several alternatives to human services software products, such as spreadsheets and paper-based tools, open source software, health care focussed EMR/EHR software products, and custom software solutions. As a result, the threat of substitutes is high.

Industry Rivalry between Human Services Software Vendors

Evidence to determine the degree of rivalry between human services software vendors has been difficult to obtain; however, a general estimate of industry rivalry based on vendor concentration may be calculated by counting the number of vendors competing in each strategic group (based on the information in Appendix A). Actual concentration could not be calculated for the purposes of this report due to the difficulty in gathering revenue figures for most of these privately held vendors, but the number of vendors in each strategic group is informative nonetheless.

Strategic Group	Number of Vendors	Relative Concentration
Generic Enterprise Software Suites	4	High / Moderate
Cloud Computing Platforms	2	High

[1] For example, Microsoft had approximately $37 billion in cash and short-term investments as of June 30, 2010 (Microsoft, 2010)

Human Services Software	16	Low
Human Services Enterprise Software	2	High
Niche-Focused Human Services Software	2	High

Table 10: Relative Vendor Concentration by Strategic Group[1]

Groups with a low number of vendors relative to the other strategic groups are defined as having a high concentration, and groups with a high number of vendors are defined as having a low concentration. The evaluation shows that the Human Services Software strategic group has low concentration, with the other groups having high concentration. Low concentration can indicate easy market entry but also high competition. Because the Human Services Software strategic group has a low concentration relative to the other strategic groups, this indicates the possibility that a differentiation strategy may exist between these vendors. This is supported by the lack of published pricing or any evidence of cost competition, implying that rivalry is not high. However, the relatively high number of vendors in the human services software market implies that vendors may be faced with cost competition, or the possibility of mergers and acquisitions, as the market matures. As a result, rivalry between vendors should be viewed as being moderate.

Market Structure

In order to illustrate the overall market structure, the following diagram depicts the intensity of each competitive force.

[1] A full listing of competitors, categorized by strategic group, is provided in Appendix A, along with their flagship products and website URLs.

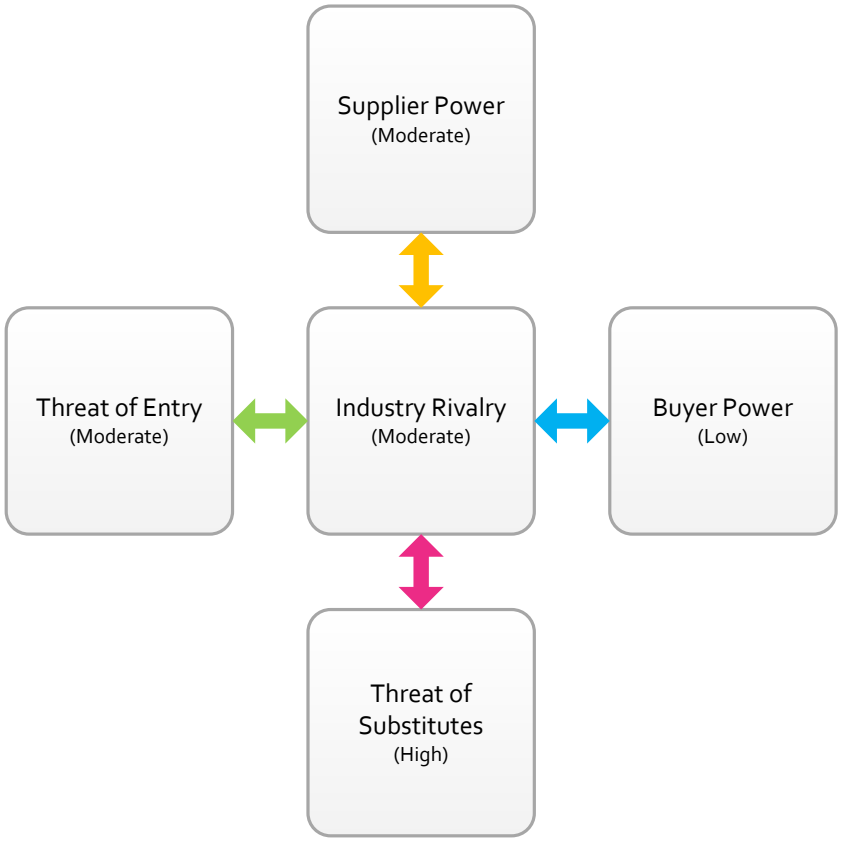

Figure 21: Porter's Five Forces Analysis of the Human Services Software Market

This analysis demonstrates that TPS should try to understand how substitutes are used by human services organizations, as Sohema must provide value that clearly differentiates it from these substitutes. The threat of other software vendors entering the market also needs to be considered, particularly because of the presence of Microsoft and SalesForce.com in the market. With regards to selecting a software framework for the development of a new version of Sohema, TPS will need to consider a software framework that is standard and well supported rather than proprietary. Finally, TPS should consider additional research into the degree of rivalry between human services software vendors, particularly trying to understand whether they are employing niche, differentiation or low-cost strategies. Overall, the human services software market is moderately attractive, when the intensities of the competitive forces are averaged out.

Section Summary and Conclusions

Buyers in the human services software market have a number of needs that may be met by four types of software solutions: case management software, financial management and accounting software, reporting software, and fundraising and social media software. Specifically, Sohema is a case management software solution, so TPS needs to adopt the minimum feature set required by buyers of case management software to ensure a competitive product while considering whether it should extend the product feature set to integrate with the other three types of software solutions. Also, TPS needs to be cognisant that the majority of buyers indicated a preference for quality and user-friendly software products and consider the importance of investing in those characteristics when enhancing the Sohema product.

In terms of competition, TPS should consider whether it wishes to continue to position Sohema in the Human Services Software strategic group, where it competes with vendors such as Defran and Qualifacts, or to move to another strategic group such as Niche-Focused Human Services Software, where it would compete with vendors such as Harmony Information Systems. Furthermore, alternatives, like EMR/EHR software for the health care industry, or open source software, may increase competition and reduce opportunities respectively. Finally, the human services software market is moderately attractive, based on an analysis of the competitive forces at work, while concentration is specifically low in the Human Services Software strategic group, indicating easier entry but also possibly increased competition.

4.4 Chapter Summary and Conclusions

By providing an analysis of the software publishing industry, the human services industry, and the human services software market that intersects these two industry, TPS is in a much better position to make informed decisions about the direction of its software product business strategy; however, good strategy is not formulated purely on the basis of market research. Formulating good strategy also involves gaining an understanding of the company's strengths and weaknesses, defining strategic options, and clearly articulating strategic and financial goals to evaluate those options, culminating in a strategy that balances market needs with the company's resources and capabilities. The following chapter provides such a strategic analysis of TPS' software product business strategy.

5 Strategic Analysis

TPS has struggled to find consistent success in developing and selling software products. The aim of this section is to understand the cause of this struggle and to evaluate and recommend strategic options. This chapter begins with a review of the company's past corporate and software product business strategies, followed by an analysis of its resources and capabilities, and a feature gap analysis of the current Sohema software product. The chapter then defines the set of criteria for evaluating new strategic options, followed by a description and evaluation of those options.

5.1 Past Strategy

TPS competes in the IT services and software industry, with a particular focus on the human services market within BC and the rest of Canada. Over its 33-year history, TPS has differentiated itself through its commitment to customer service, completing projects successfully and achieving high service levels (TP Systems Ltd., 2009). This is reflected in its current corporate motto "Trust. Performance.". TPS has three distinct yet complementary lines of business and, for most of its existence, has focused on providing IT outsourcing services to regional customers. However, five years ago, TPS changed its corporate strategy to include the design, development, and sale of software products, resulting in four distinct software product business strategies over a four-year period. This section describes those changes in both corporate and business strategy.

Past Changes in Corporate Strategy

In 2005, executives at TPS realized that its corporate strategy needed to change for three reasons: the company wanted to increase its pace of growth, there were signs of consolidation in the IT services industry, and the company relied too much on revenue from a single customer. Executives envisioned a change from an IT "body shop" to an IT company comprised of a diversified portfolio of products and services that would generate revenue from multiple sources. As a result, TPS' first strategic move was to enter the software products business in 2006 to take advantage of its domain expertise, software development capabilities, and growing

collection of technology assets. TPS chose to dedicate most of its investment capital in its product business for the years to come. While this shift in corporate strategy occurred gradually over the last four years, the results have been uneven.

Most recently, John Thompson, President of TPS, expanded his vision of the company to one that is "emulated by other vendors in the human services software market" due to the company's foresight and technology leadership (Thompson, 2010). Mitchell Ngai, COO of TPS, supports shifting the company's strategy from one focused on technology solutions to one focused on business solutions (Ngai, 2010).

The shifts in corporate strategy over the last 33 years are subtle, given that TPS continues to target the human services industry and sell similar services. The only significant shift in corporate strategy has been TPS' entry into the human services software market in 2006. The next section reviews the specific software product business strategies employed by TPS once it decided to enter the human services software market.

Past Changes in Software Product Business Strategy

TPS' software product business strategy shifted four times over the last four years and each shift can be characterized by the following dimensions: technology-push, customer funded, big whale (the metaphor will be explained later), and market-driven. The following chronology depicts the four major shifts in software product business strategy, along with a qualitative estimate of the amount of investment made by TPS while each strategy was executed.

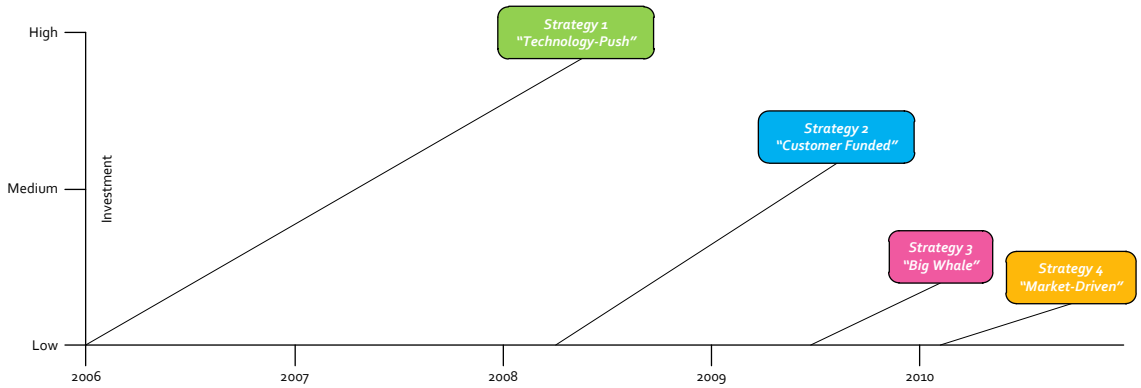

Figure 22: Chronology of Investment in TPS Product Strategy (2006 to 2010)

Strategy 1: Technology-Push

In 2006, TPS was approached by the BC Ministry of Children and Family Development (MCFD) to consider co-licensing the custom software application developed for MCFD to manage provincial adoptions. This suggestion, coupled with TPS' need for growth and diversification, led to the company's entrance in the human services software market. Following the establishment of a licensing agreement with MCFD, TPS enhanced the custom software application in partnership with an adoption agency in Ontario. What resulted was the AdoptionLynx product: a case management and child-family matching software application for the domestic public adoptions market. Around the same time, TPS chose to acquire the human services software framework SectorLynx from LogicLynx Technologies.

With two human services products under its wing, TPS was optimistic about its future and ready to launch its products. However, without any previous software product management and marketing experience, TPS assumed that a technology-push strategy and a blitz-like marketing campaign would be effective. TPS invested significant capital in marketing its two products via conferences, marketing materials, and sponsorships. Unfortunately, this approach did not generate any solid leads and after two years of fruitless marketing and sales efforts, TPS questioned its decision to enter the software product business. AdoptionLynx was not selling, as the product was too specific to Canadian customers and the market-size was too small. SectorLynx was not selling, as the marketing message was unfocused and software configuration costs were too high for the product to be competitive.

Strategy 2: Customer Funded

In 2008, TPS won a significant contract from a US customer to implement its SectorLynx software in a new domain related to medical claims cost recovery. As a result of this win, TPS re-tuned its software product strategy to focus on organic, opportunistic growth. In other words, TPS would invest in its products when customers paid it to do so. The US contract was very large and enabled TPS to make major investments in the SectorLynx platform. After a detailed technical review of the SectorLynx product, however, it became clear that this solution would not meet a number of the requirements defined by the US customer. TPS made the decision to redesign the product, naming it Sohema. The new software possessed powerful new configuration tools that cut implementation costs significantly.

Like SectorLynx, Sohema was also positioned as a human services software product for medium- to large-sized organizations; however, the product features were derived entirely from those defined by the US customer. Upon completion, TPS began to market Sohema, but ran into familiar problems. Sohema had no clear differentiation advantage and was missing a number of basic features required by new customers.

Strategy 3: Big Whale

Shortly after Sohema was launched as a commercial software product, management at TPS met with representatives of a major US company with a multi-billion dollar business unit focused on managing IT services for US state governments. While this company expressed interest in the product as an option for upcoming projects, it required more of an enterprise software framework, similar in capability to the Cúram software product. As a result, TPS executives made the decision to alter Sohema's product strategy to focus on the enterprise or very-large segment of the human services market. They used the metaphor of "following the big whale" to describe their thinking to mean that this was a rare and substantial opportunity that needed to be captured. However, within only a few months of research and development, it became clear that the cost of altering the product to work at an enterprise scale would be significant, and the timeline for completion lengthy.

Strategy 4 (Current): Market-Driven

In late 2009, given TPS' uneven performance over the last four years, executives agreed to evaluate the company's software product strategy and the decision was made to freeze any additional product development efforts in preparation for developing a comprehensive strategic plan comprised of both short-term and long-term objectives. Most importantly, the decision was made to pursue a market-driven strategy, where detailed market analysis would precede any investment in product development. In the short term, this meant finding a suitable market for existing technology assets, while searching for larger opportunities in the long term.

For the short term, TPS agreed to reposition Sohema for the First Nations human services software market niche in Canada, renaming the product as "Pathways". Modest sales targets were set for this product, which are currently on track to be achieved. For the long term, TPS agreed to evaluate the larger human services software market in the US, and to consider shifting

its focus from developing technology solutions (technology-push) to developing business solutions (market-pull).

Section Summary and Conclusions

The shifts in software product business strategy at TPS have been much more volatile than the shifts in its corporate strategy. This was a symptom of the organization's inexperience with product management processes, including in-depth market research, product positioning, and business planning. The most recent shift in strategy is promising, as TPS is investing in market research prior to the development of new products. This implies that product requirements will be defined that solve real market problems, which may lead to higher sales and improved financial performance.

Although an understanding of past strategy may help to explain the current performance of TPS' software product business, a better understanding of the Sohema product's market fit and the company's strengths and weaknesses will help evaluate the strategic options available to the company. The following two sections provide a description of the Sohema product's market fit, and a detailed review of the company's resources and capabilities.

5.2 Product-Market Fit

A primary cause of uneven strategic performance by TPS' software products was poor product-market fit (Hathway, 2010). The following gap analysis identifies the extent to which Sohema product meets market expectations.

Gap Analysis

The following table, recreated from the feature list in the Human Services Software Market section in the Industry Analysis chapter, presents a gap analysis of the most recent version of the Sohema software product, in relation to features expected by buyers and provided by most competitors. Solid circles represent functionality Sohema currently has; empty circles represent functionality only partially implemented in Sohema.

Exists?	Benchmark Software Feature
●	Registration and Client Management
●	Intake and Referrals
	Eligibility and Entitlement Calculation
●	Assessments and Surveys
○	Outcomes / Performance Management
	Decision Support and Evidence-Based Practice Recommendations
	Workflows and Approvals
	Billing and Sub-Ledger Accounting
	Scheduling
●	Tasks and Reminders
○	Agency Management
	Provider Management and Credential Tracking
	Bed Management
○	Scanning and Document Management
○	Form Letters / Mail Merge
●	Reporting (Static and Ad-Hoc) and Dashboards
○	User-Configuration (i.e. add new fields to forms)
●	Role-Based Security
○	Data Auditing (e.g. Change and Access Logs)
	Integration with Accounting and Human Resources Software

Table 11: Sohema Product Gap Analysis

Section Summary and Conclusions

It is evident there are major gaps in functionality, and that some of these gaps represent features which address the most pressing business problems faced by the Human Services Industry. In fact, when counting two partially implemented features as one fully implemented feature, Sohema only provides only 45% (9) of the 20 major features listed. Given that Sohema has less than half of the functionality expected by human services software buyers, it is understandable that TPS is finding it difficult to sell the Sohema product. Buyers typically look for “all-in-one” solutions that provide not only client and case management, but also financial management, reporting, and integration features (Naughton-Travers, 2010b). Because most other vendors that sell to the US human services software market provide most of these features, Sohema is not typically short-listed by buyers. In fact, all features must be present in some form to compete with existing competitors (Naughton-Travers, 2010a). Missing features, such as scheduling, billing and sub-ledger accounting, and performance measurement, have already cost TPS sales (Hathway, 2010). Finally, Sohema does not currently focus on any

particular program area, neglecting to specialize in vertical-specific functionality, and making it difficult to craft a marketing message for specific market segments. If TPS wishes to improve the sales of Sohema, it must consider implementing all defined functionality; however, in order for TPS to make this investment, it must first consider whether it has the resources and capabilities to do so.

5.3 Resource and Capability Analysis

This section provides an analysis of the company's resources and capabilities, identifying the key strengths and weaknesses it possesses to enable it to ensure the investment leads to a better product sales performance. Although TPS has diverse capabilities, because of its distinct business units, this analysis will focus on those relevant to designing, developing, and selling software products for the human services software market, which is the primary concern of this report. The section first identifies the key success factors required for profitability in the software publishing industry and the human services software market; next , it provides a listing of resources and capabilities required to address those key success factors; and finally, it reviews and ranks TPS's resources and capabilities in order to identify the company's strengths and weaknesses.

Key Success Factors

Vendors in the software publishing industry must consider the following key success factors when formulating their business strategy (Thormahlen, 2010):

1. **Undertaking technical research and development:** to develop innovative products that provide new value to customers
2. **New product patents:** to protect investments in research and development
3. **Access to highly skilled workforce:** to ensure a high quality software product
4. **Ability to expand or cut operating divisions in line with market conditions:** to ensure vendors remain competitive and can control costs in a fast-paced industry
5. **Access to the latest available and most efficient technology and techniques:** to ensure rapid and low cost product development

6. **Close monitoring of competition:** to ensure their software products provide better or different value to their customers than the competition
7. **Effective marketing:** to ensure that the value of the software is effectively communicated to potential customers

Additional key success factors necessary for superior competitive performance in the human services software market include (Naughton-Travers, 2010b):

8. **Strong understanding of human services practice (domain expertise):** to ensure that software solutions are implemented according the industry best practices, while providing training in a language that staff at human services organizations can understand
9. **Flexible license pricing and low-cost implementations:** to address the funding constraints of human services organizations
10. **Broad IT services and support:** to help human services organization recognize a return on their investment through managing organizational change, providing training, and providing long-term support

Firms that are able to support these key success factors with their resources and capabilities will demonstrate superior competitive performance.

Required Resources and Capabilities

TPS must possess a number of resources and capabilities to support the key success factors required by the human services software market, according to the rationale provided in the following table.

ID	Resource (R) / Capability (C)	Key Success Factor	Rationale
R1	Capital for Research and Development	Undertaking technical research and development	Capital is required for funding the research and development of new versions of the Sohema product.
R2	Software Patents and Copyrights	New product patents	Patents and copyrights are required to ensure that key features of Sohema are protected from competition.
R3	Highly Skilled Technical Staff	Access to highly skilled workforce	The Sohema project team will require skills technical staff to handle complex requirements, such as performance measurement and regulatory compliance.
R4	Staff with Deep Domain Knowledge	Strong understanding of human services practice (domain expertise); Broad IT services and support	Staff with human services industry domain knowledge will be required for product design, implementations and training.
R5	Reputation and Brand Awareness	Effective marketing	Generating brand awareness at trade shows and conferences, while developing a good reputation through successful software implementations support effective marketing.
C1	Effective Product Management and Research	Close monitoring of competition; Strong understanding of human services practice (domain expertise)	Effective product management is required to ensure TPS understands the competition and the human services industry, resulting in a coherent product vision.
C2	Innovative New Product Development	Undertaking technical research and development	By improving its ability to develop innovative new products, TPS supports research and development.
C3	Efficient Use of Research and Development Capital	Undertaking technical research and development	Given its history of unfocussed product strategy, TPS must ensure that the funds dedicated to research and development are used effectively.
C4	Efficient Software Implementation Processes	Flexible license pricing and low-cost implementations	Given the financial challenges faces by the human services industry, TPS must ensure that software implementations can adapt to customer needs in an efficient way.
C5	Effective Product Marketing	Effective marketing	Effective product marketing is required to ensure that customers understand the value of the Sohema product.
C6	Effective Leveraging of Existing Technologies	Access to the latest available and most efficient technology and techniques	Developers at TPS should use existing tools and framework to ensure that the company cuts the costs and time spent developing new products.
C7	Broad IT Services Provision	Broad IT services and support	Customers of Sohema require access to a variety of IT services and support to ensure their software implementations have a positive return on investment.
C8	Staffing Agility	Access to highly skilled workforce; Ability to expand or cut operating divisions in line with market conditions	TPS will be required to rapidly grow or shrink capacity to address demand, or the lack thereof.

Table 12: Mapping Resources and Capabilities to Key Success Factors

The resources and capabilities defined in this table are used in the next table to help identify TPS key strengths and weaknesses; each resource and capability is ranked by relative strategic importance and industry scarcity based on industry knowledge and experience. Strategic importance represents the degree by which the resource or capability allows TPS to support a

critical success factor; industry scarcity refers to availability of the resource or capability in the software publishing industry (Grant, 2008).

ID	Resource (R) / Capability (C)	Strategic Importance[1]	Industry Scarcity[2]
R1	Capital for Research and Development	6	2
R2	Software Patents and Copyrights	4	2
R3	Highly Skilled Technical Staff	7	2
R4	Staff with Deep Domain Knowledge	8	1
R5	Reputation and Brand Awareness	4.5	1
C1	Effective Product Management and Research	5.5	3
C2	Innovative New Product Development	7	3
C3	Efficient Use of Research and Development Capital	5	2
C4	Efficient Software Implementation Processes	8	1
C5	Effective Product Marketing	8	1
C6	Effective Leveraging of Existing Technologies	5	3
C7	Broad IT Services Provision	7	1
C8	Staffing Agility	4	2

Table 13: Required Resources and Capabilities with Strategic Importance and Scarcity Rankings

In terms of the human services software market, deep domain knowledge, efficient software implementation processes, and effective marketing are of the highest importance, explaining their high strategic importance values (Naughton-Travers, 2010b). Vendors in the human services software market have difficulties obtaining staff with deep domain knowledge, and struggle with providing a providing a broad range of IT services and efficient software implementation processes, indicating scarce resources and capabilities.

TPS' Resources and Capabilities

The rankings presented above were used to conduct an inventory of TPS' resources and capabilities and the table that follows contains a high-level analysis of the relative strength of TPS resources and capabilities in comparison to those required to address the industry's key success factors. Each resource or capability has been annotated with comments explaining the rationale for each relative strength value.

[1] Ranks the importance of this resource or capability in supporting the key success factor(s). Scale from 1 to 10 (1 = very low; 10 = very high).
[2] Scale from 1 to 3 (1 = very scarce; 2 = moderately scarce; 3 = not scarce).

ID	Resource (R) / Capability (C)	TPS[1]	Comments
R1	Capital for Research and Development	4	As a percentage of revenue, TPS plans on spending about 7% of its annual revenue on research and development in 2010, which is less than the 12% industry average. This reduction in spending reflects a more conservative, risk averse approach to its software product strategy; however, this is also the result of TPS having three distinct lines of business, where profits from the other two lines of business are being allocated to funding research and development in the software business unit.
R2	Software Patents and Copyrights	2	TPS does not hold any technology patents.
R3	Highly Skilled Technical Staff	6	TPS has highly skilled technical staff with a broad range of IT skills and experience, and specific expertise in Microsoft technologies for software development. However, TPS lacks staff experienced in the design and development of software products.
R4	Staff with Deep Domain Knowledge	5	Although TPS has some staff with human services domain knowledge, this knowledge is limited to Canadian practice and is not widely shared or codified across the company. Particular areas of domain expertise include child and family services, mental health services, and residential care services.
R5	Reputation and Brand Awareness	4	TPS enjoys a good reputation with its existing customers; however, the company and its products are not commonly known throughout the industry.
C1	Effective Product Management and Research	7	TPS has acquired good market research skills via an experienced Marketing Director, trained Business Development resources, and new relationships with external consultants with domain expertise.
C2	Innovative New Product Development	7	Although TPS has not found consistent success in its software products, each product contains features that are innovative in the industry, such as the matching engine in AdoptionLynx, the screening tools in BCFPI, and the configuration tools in Sohema. As such, TPS has demonstrated innovation in new product development.
C3	Efficient Use of Research and Development Capital	3	TPS has not used its research and development capital efficiently, rebuilding its software products several times without clear focus or strategic direction.
C4	Efficient Software Implementation Processes	4	Although improving, TPS has not demonstrated an ability to perform efficient software implementations repeatedly. Project performance has been inconsistent, with actual effort varying widely from estimated effort.
C5	Effective Product Marketing	5.5	TPS has been reasonably effective at product marketing, but the relative newness of its product strategy coupled with several revisions of its product positioning have made marketing success difficult to achieve.
C6	Effective Leveraging of Existing Technologies	5	TPS has leveraged technologies in many valuable ways, reducing development time and improving quality. More recently, TPS has moved beyond reliance on its own developers by licensing software components from third-party vendors in order to reduce risk, labour costs, and improve focus on domain expertise acquisition.
C7	Broad IT Services Provision	9	Because TPS has three major lines of business that complement each other well, it is able to provide not only software products, but also implementation and support services. In addition, TPS is also able to locate highly skilled project managers and analysts to aid in the organizational transformation that typically accompanies new software implementations.
C8	Staffing Agility	6	TPS has demonstrated good staffing agility over the last 5 years, growing and contracting proactively based on business and macro-economic conditions. With a portion of its staff working under contract, and a line of business focused on recruiting and staffing, TPS is able to scale on demand.

Table 14: Relative Strength of TPS Resources and Capabilities

[1] TPS' score relative to the strategic importance score.

Given that TPS has three major business units that provide distinct but complementary services, its relative strength in broad IT services provision is the highest. TPS does not have any patents, explaining the lowest ranking, but the second-lowest ranking is also significant, reflecting that TPS has not efficiently used its research and development capital, partly due to the shifting software product strategy described earlier. The values provided here, along with those in the previous table, are used in the next section to perform an analysis of TPS' organizational strengths and weaknesses.

TPS' Strengths and Weaknesses

Part of formulating good strategy involves leveraging a company's key strengths and avoiding its key weaknesses. In *Contemporary Strategy Analysis*, Grant employs a quadrant map for identifying an organization's key strengths and weaknesses (Grant, 2008, p. 147). By plotting the strategic importance, relative strength, and scarcity values of TPS' resources and capabilities (as defined the previous section) into four quadrants (key strengths, key weaknesses, superfluous strengths, and zone of irrelevance), it is possible to define TPS' specific strengths and weaknesses. The size of each data point reflects the relative scarcity of the resource or capability, enabling the identification of the source of the company's competitive advantage.

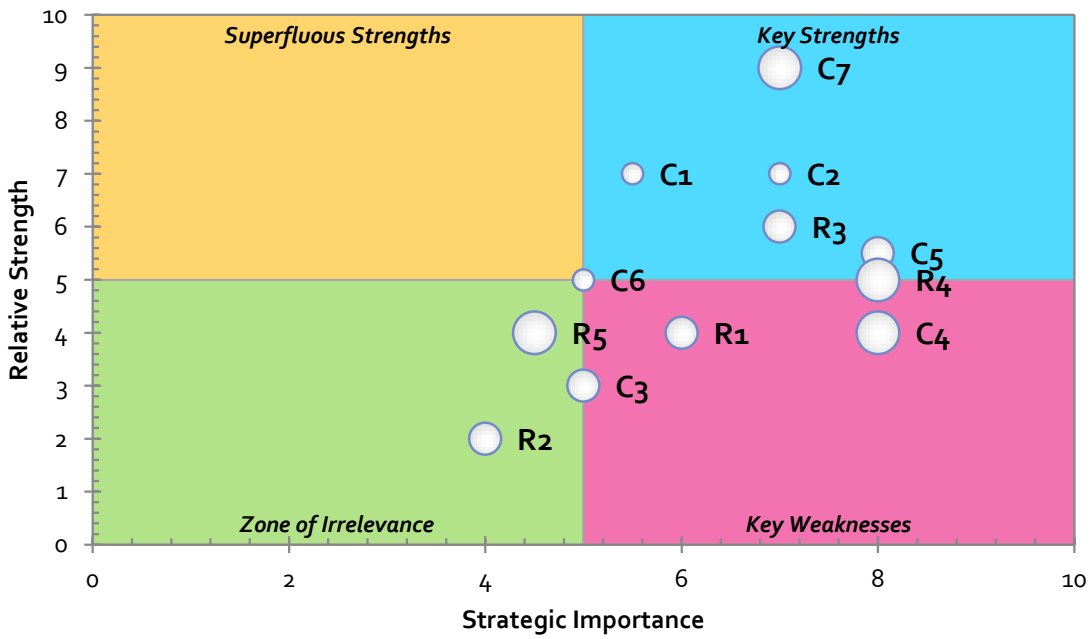

Figure 23: Relative Strength, Importance, and Scarcity of TPS Resources and Capabilities

According to the chart, TPS has key strengths in the following areas:

- C7: Broad IT Services Provision (very scarce)
- R3: Highly Skilled Technical Staff (moderately scarce)
- C5: Effective Product Marketing (not scarce)
- C2: Innovative New Product Development (not scarce)
- C1: Detailed Market Research Skills (not scarce)

Broad IT services provision is TPS' competitive advantage, followed by its highly skilled technical staff, both of which are essential for supporting the key success factors defined for the human services software market. The other three capabilities identified as keys strengths are important but easy to imitate, meaning they do not ensure a competitive advantage, but support good company performance nonetheless. TPS has key weaknesses in the following areas:

- C4: Efficient Software Implementation Processes
- R1: Capital for Research and Development

TPS must improve its software implementation processes and consider increasing its research and development spending to compete effectively with other human services software vendors. Some resources and capabilities of high strategic importance currently straddle the key strength and key weakness quadrants:

- C6: Effective Leveraging of Existing Technology
- R4: Staff with Deep Domain Knowledge

TPS should acquire additional domain expertise in the US human services industry, and find better ways of using existing technologies, such as third-party software frameworks to transform these two characteristics into key strengths.

Each of these resources and capabilities may be further enhanced through additional investment, particularly those identified as key weaknesses or those straddling that quadrant. The following section proposes how TPS may invest in improving its resources and capabilities.

Investing in Resources and Capabilities

Although TPS has made past investments in all of the identified resources and capabilities, it should increase investment in specific areas. The following table indicates the relative extent to which TPS has invested in and should invest in its resources and capabilities; major increases in investment are indicated in pink, moderate increases in blue, and decreases in green.

ID	Resource / Capability	Past Investment	Recommended Investment	Comments
R1	Capital for Research and Development	Moderate	High	TPS may wish to spend more than the 7% of revenue allotted to research and development, brining it closer in line with other software publishing vendors.
R2	Software Patents and Copyrights	Low	Low	Entry to the human services software market is not influenced by technology patents.
R3	Highly Skilled Technical Staff	Moderate	Moderate	Investment should be made to retain the best staff.
R4	Staff with Deep Domain Knowledge	Low	High	Entering the human services software market will require investment in acquiring domain expertise, either through hiring consultants or staff with industry experience.
R5	Reputation and Brand Awareness	Moderate	Moderate	TPS will have to invest in generating brand awareness once it launches it product in the US market, likely through trade show and conference attendance and sponsorship, and travel costs related to sales presentations.
C1	Detailed Market Research Skills	Low	Moderate	TPS has already invested in market research, but should continue to do so to remain competitive.
C2	Innovative New Product Development	Moderate	Moderate	In order to develop a product that addresses market problems, TPS will have to continue to innovate.
C3	Efficient Use of Research and Development Capital	Low	Low	TPS must ensure that its use of research and development capital is efficient, which could be accomplished by setting up stage-gate processes for product development.
C4	Efficient Software Implementation Processes	Moderate	High	As indicated by the company analysis, TPS will have to invest more heavily in this capability.
C5	Effective Product Marketing	Moderate	Moderate	Marketing efforts have been moderately effective; uneven performance is a symptom of poor product-market fit.
C6	Effective Leveraging of Existing Technologies	Low	Moderate	TPS should invest in licensing technologies from other vendors, allowing it to focus on product management instead of technology development.
C7	Broad IT Services Provision	High	Moderate	TPS could reduce investment in this capability and maintain its current level of performance.
C8	Staffing Agility	Low	Low	TPS does not need to invest a lot in this capability, as it has a large network of capable resources that allow it to scale when required.

Table 15: TPS Past and Recommended Investment in Resources and Capabilities

Investing in obtaining deep domain knowledge in the US human services industry would be the most significant change for TPS, as it has not invested in acquiring that knowledge in the past;

deep domain knowledge is required to ensure that the Sohema product meets market needs, while proving the company's credibility to prospective customers. By moderately increasing investment in research and development, market research, software implementation processes, and the use of existing technologies, TPS will improve its chances of positively impacting the key success factors typical to the human services software market.

Section Summary and Conclusions

Based on the results of the analysis that focuses on the scarcity of a resource or capability as a determinant of competitiveness, TPS has a competitive advantage in terms of its broad IT services provision, supported by highly skilled technical staff. However, in order for TPS to compete more effectively, it will have to increase its research and development spending and improve its software implementation processes, while investing more in obtaining US human services industry domain. Now that the company's strengths and weaknesses have been identified, it is possible to consider TPS' strategic options in terms of corporate strategy and software product business strategy.

5.4 Strategic Options

TPS may consider a number of strategic options at both the corporate and business level to improve the performance of the company and its software products. This section describes and evaluates those options, and concludes with a recommended business strategy for TPS software products.

Corporate Strategy

As stated earlier, TPS' existing corporate strategy is to sell IT services and products to the human services industry, generally to customers in BC and the rest of Canada. Before reviewing its software product business strategy, TPS could review its corporate strategy, considering options to maintain the status quo or exit the products business entirely:

Option 1: Maintain the Status Quo

Maintaining the status quo implies that TPS would continue to invest in software product research and development, marketing, sales, and support; this option also implies that TPS would continue to sell software products to the human services software market.

Option 2: Exit Products Business

TPS could exit the products business entirely, and focus on its other lines of business, such as its IT services (outsourcing) business. Capital currently allocated to product research and development could be used in the acquisition of small IT services companies both locally and in other parts of Canada to grow its geographic scope, while simultaneously targeting a market niche to limit competition with major IT services competitors, such as CGI, Cap Gemini, and IBM.

For the remainder of this chapter, it is assumed that TPS' corporate strategy is to maintain the status quo (i.e. Option 1) and continue to develop and sell products to the human services software market; business strategy options reflecting this corporate strategy are presented in the following section. Although exiting the products business (i.e. Option 2) is worth considering, the advantages and disadvantages of that option are beyond the scope of this report. If TPS chose Option 2, the analysis that follows would be irrelevant, as exiting the products business would eliminate the need for a software product business strategy.

Software Product Business Strategy

In order to reformulate the business strategy of its Sohema software product, TPS should consider four strategic options, each of which have been considered by TPS at one point over the past four years; however, past evaluation of these options has been ad-hoc, due to limited market research, and an absence of clearly articulated strategic and financial objectives. The following evaluation is more rigorous, employing evaluation criteria and a method of scoring options against those criteria.

Evaluation Criteria and Approach

The evaluation criteria presented in the following table have been defined using both strategic and financial objectives expressed by TPS executives for the new product strategy (Thompson, 2010; Ngai, 2010).

Strategic Objectives	Financial Objectives
1. Maximize the use of existing resources and capabilities 2. Launch a new version of the product in the first half of 2011 3. Focus resources on acquiring US human services domain expertise to improve TPS' creditability in the industry 4. Invest in a technology platform that provides future flexibility	1. The product should have a positive operational profit within one year after product launch. This means that revenues resulting from product sales should at least cover the cost of marketing, selling, implementing, supporting, and enhancing the product by the end of the first year. This does not include the initial cost of developing the product. 2. The research and development budget for the new product prior to launch will be under $1,000,000, with the expectation that some assets from the existing Sohema product will be reused.

Table 16: TPS Strategic and Financial Objectives

An evaluation matrix will be utilized to indicate the impact on the strategic and financial objectives for each strategic option. Each strategic and financial objective is included as an item to be scored and commented on. Valid impact scores are 2, 1, 0, -1, -2, with positive numbers representing a positive impact and negative numbers representing a negative impact to the objective. The total score will be a sum of all impact scores with the top option (highest score) recommended for further consideration, and the second option recommended as a backup in case additional research on the first option invalidates it.

Option 1: Invest In Existing Product Platform

TPS may want to invest in the existing version of Sohema, and continue to target the medium- to large-sized human services organization segment of the market.

	Impact	Comment
Strategic Objective		
1	3	Investing in the existing product platform is a good use of existing resources and capabilities, as it limits staff training costs and promotes reuse of technology assets.
2	2	It is likely that a new product can be launched in the first half of 2011.
3	-1	Much of the budget will have to be allocated to improving the underlying technology platform, limiting the amount of domain expertise that may be acquired.
4	-2	The existing product platform has architectural issues that limit its scalability, particularly if TPS wishes to pursue a software-as-a-service delivery model.
Financial Objective		
1	-1	The current cost of configuring Sohema is high, lowering profits despite the potential for high revenue. The risk will likely remain for future versions of the product.
2	1	It is likely that a product meeting minimum market requirements could be developed with the specified budget.
1. TOTAL SCORE: 2		

Table 17: Analysis of Strategic Option 1

However, as noted earlier, the product has significant gaps in functionality, configuration costs are high, and the product has architectural issues that constrain is scalability, as discovered during the "big whale" product strategy. This means that although investing in the existing product is a good use of existing resources and capabilities and increases the chance of a successful product launch in the first half of 2011, high configuration costs and lack of flexibility will remain, lowering profitability and resulting in a score of 2.

Option 2: Rebuild Product Using another Technology Platform

Instead of investing in the technology platform that supports the current Sohema product, TPS may wish to re-develop the product using a third-party technology platform. This would transfer the risk of developing the technology to another vendor, while allowing TPS to focus on obtaining domain expertise and implementing vertical product functionality. If TPS selects a technology platform using the same underlying software framework as Sohema, it may also be able to transfer assets from its existing platform to the new one.

	Impact	Comment
Strategic Objective		
1	1	The selection of the new technology platform will greatly influence the degree by which TPS will be able to leverage its existing resources and capabilities. Given its deep expertise with Microsoft technologies, TPS should select a platform developed with those technologies and favour those platforms that allow for TPS to transfers some of its assets from the existing platform to the new one.
2	-1	Selecting a new product platform may lead to delays in schedule due to training needs and issues in functionality migration.
3	2	Given the new technology platform will not possess the issues of the existing platform, TPS will be able to invest in obtaining domain expertise.
4	2	Selecting a new technology platform should follow a rigorous selection process, which will ensure scalability and future flexibility, unlike the existing platform.
Financial Objective		
1	1	The new technology platform should also be selected based on its ease-of-use, particularly in relation top software configuration tools. Lower configuration costs will increase profits.
2	-1	It is likely that a product meeting minimum market requirements could be developed with the specified budget, however, the cost of licensing the platform may be high.
TOTAL SCORE: 4		

Table 18: Analysis of Strategic Option 2

Rebuilding Sohema using another technology platform is a riskier option, in that it requires the successful identification of an appropriate platform, the failure of which will lead to schedule delays; however, this option will improve future flexibility and significantly lower implementation costs in the long run, resulting in high profits. This option receives a score of 4.

Option 3: Develop New Product for Different Segment

The previous two options assumed that TPS would sell to the same segment of the human services software market. TPS could consider developing a new product for a different segment of the market. Given TPS has already investigated the cost of developing a product for the very-large (enterprise) segment of the market, it could evaluate the segment of the market containing small-sized organizations.

	Impact	Comment
Strategic Objective		
1	-2	Developing a new product for a different segment may require new resources that can handle different marketing, sales, and operational requirements. For example, if implementing a volume business via a cloud computing model, investments will need to be made in hosting solutions, automated billing and software setup, and user-friendly support materials. This may have a major impact on organizational structure.
2	0	Given the variety of unknown factors here, judging the impact on schedule is difficult.
3	1	This strategy may still allow TPS to focus on obtaining domain expertise for this specific market segment; however, TPS may be distracted with the underlying requirements that may result from the new technology platform.
4	1	As in the previous strategic option, a rigorous selection process should be used to ensure the selected platform requires future flexibility; however, in the case of a cloud computing product, it is likely the new platform will be optimized for cloud-computing environments, making use in other scenarios unlikely.
Financial Objective		
1	-1	It is unlikely that this strategy will yield a positive operational profit in its first year of operations, particularly if a cloud-computing strategy is employed, as major up-front investments must be made, in both research and development and operations, before scale effects positively impact profits.
2	0	The budget may be enough to cover the cost of developing the new product; however, there are too many unknown factors to score the impact.
TOTAL SCORE: -1		

Table 19: Analysis of Strategic Option 3

This option may lead to a volume business that would require TPS to compete on price and service, and possibly use a cloud computing approach to software delivery. As a result, this will require TPS to significantly restructure is software division and invest in new technologies. As a result, this option receives a score of -1.

Option 4: Resell a Competitor's Product

Instead of developing its own product, TPS could simply resell another vendor's product, such as Microsoft Dynamics CRM, to the same market segment, enhancing it with domain-specific functionality and focusing on generating revenue via the sale of IT services for implementation and support.

	Impact	Comment
Strategic Objective		
1	-2	Reselling a competitor's product, such as Microsoft Dynamics CRM, will require extensive technical and business training, and reduce need for internal development resources, impacting the organizational structure.
2	1	Reselling another product will be a safe way to ensure schedule the target launch period is achieved; however, implementing domain-specific functionality will still take time.
3	2	Given the vendor's platform will not possess the issues of the existing Sohema platform, TPS will be able to invest in obtaining domain expertise.
4	2	Selecting a competitive product should follow a rigorous selection process, which will ensure scalability and future flexibility. Furthermore, it is expected that the competitor will continue to invest heavily in its platform.
Financial Objective		
1	-2	The major drawback to reselling a competitor's product is the high costs associated with licensing that product for resale. In a market where most revenues are generated via software licensing, it is unlikely TPS will be able to generate a positive operational profit in its first year as it invests in streamlining processes.
2	2	By reselling another product, TPS may allocate its entire research and development budget to developing domain-specific functionality. In fact, the full budget may not be required.
TOTAL SCORE: 3		

Table 20: Analysis of Strategic Option 4

Reselling a competitor's product has the advantage of reducing both schedule and technical risks; however, because vendors in the human services market generate most of their revenue via license fees, TPS will have difficulty generating a high profit, as it will be obligated to pass on a high proportion of the licensing revenue to software vendor. Overall, this is the least risky strategy, but also the least profitable, resulting in a score of 3.

Section Summary and Conclusions

The evaluation of the options demonstrates that the second option "Rebuild Product Using another Platform" is the most attractive strategic option (with a high score of 4), as it allows TPS to continue to target the human services software market with a better version of Sohema built on a new technology platform that provides flexibility. Furthermore, although not defined as a strategic objective, this option allows TPS to leverage its existing customer accounts as references when trying to generate sales of the new version of the Sohema. Finally, if TPS uses another vendor's technology platform to build the new product, it allows TPS to focus on obtaining deeper domain expertise, particularly in the US human services industry, which is critical for success in the human services software market. The following table provides the aggregate scores for all four options.

	Option 1: Invest in Existing Product	*Option 2: Rebuild Product Using another Technology Platform*	Option 3: Develop New Product for a Different Segment	Option 4: Resell a Competitor's Product
Strategic Objective				
1	3	1	-2	-2
2	2	-1	0	1
3	-1	2	1	2
4	-2	2	1	2
Financial Objective				
1	-1	1	-1	-2
2	1	-1	0	2
TOTAL	**2**	**4**	**-1**	**3**

Table 21: Summary of Strategic Options Analysis

It is assumed that TPS will perform further due diligence before pursuing the recommended strategy. Some of the activities involved in that process are defined in the next chapter; however, if it appears that either a suitable technology platform cannot be found (due to technology constraints or price), or the market opportunity is not as attractive as this report claims upon further analysis, then TPS can consider "Option 4: Resell a Competitor's Product". This strategy is arguably a less risky strategy, as it eliminates the risk involved in developing a software product, allowing TPS to focus solely on implementing software solutions. This is a back-up plan for a reason, however, as TPS will find it difficult to generate significant profit from a pure resale and implementation model, as most vendors in the human services software market generate profit from license fees, not implementation services (Naughton-Travers, 2010b). Finally, TPS should avoid developing a new product for a different segment, as that strategy fails to take advantage of TPS' current domain knowledge and will likely require changes to organizational structure and product platform technologies.

Now that TPS has been provided with a better understanding of the human services software market, its key strengths and weaknesses, and a recommended software product business strategy, it is in a much better position to proceed with additional research and planning. However, other issues that may have affected the performance of the company's product strategy should also be considered. The final section of this chapter provides TPS with recommendations to address those issues.

5.5 Additional Recommendations

Issues with past business strategy may also be indicative of general organizational factors, such as the organizational structure and culture. Specifically, TPS could address these factors by introducing the product management discipline and creating a product manager position to oversee Sohema, while at the same, embracing new values to create a corporate culture more suitable for the development and sale of software products.

Product Management

Past product strategies were typically formed via consensus, with various managers and project teams executing the strategy in relative isolation. Because no single individual was accountable for the product concept and the success of the strategy, individual managers and teams had different understandings of their objectives; this may be the primary cause of inconsistent focus. As a result, TPS may want to consider introducing the "Product Management" discipline to the company. The following sections define the role of product management, and specific activities that a product manager could take to refine TPS' software product business strategy.

The Role of Product Management

TPS may want to consider a change to its organizational structure, introducing the role of "Product Manager", and assigning a product manager to the Sohema product to introduce accountability into the product management process. The following diagram depicts the relationship between product management and other disciplines within the company, such as marketing, sales, and development.

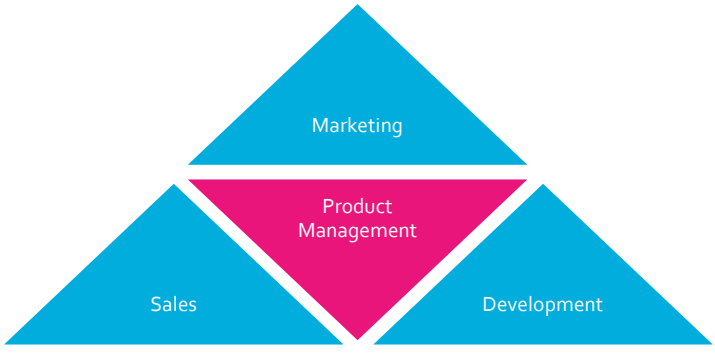

Figure 24: Relationship between Product Management and Other Disciplines (Pragmatic Marketing, 2010)

Product managers act as the glue between these other disciplines, managing the overall product concept, feature scope, and positioning. Product managers support sales by preparing presentation or software demo resources; they support marketing by communicating the product concept, features, and positioning; and, they support development by providing detail product requirements and specifications. Finally, product managers assume responsibility for the product concept and the product performance, preparing business plans and performing financial forecasts (Pragmatic Marketing, 2010).

Product Management Activities

As TPS reformulates its software product business strategy, it should employ the following product management activities, and assign them to a designated product manager. The activities recommended here are based on those defined by the Pragmatic Marketing Framework, a phased-based product development lifecycle for use by Product Managers (Pragmatic Marketing, 2010). The following diagram depicts each stage in the lifecycle as a coloured chevron.

Figure 25: Pragmatic Marketing Product Development Lifecycle

At each stage of the lifecycle, the product manager should engage in one or more product management activities. The "Market" stage involves performing a deeper market analysis pertaining to the selected strategic option. This includes the following activity:

- **Obtaining a deeper understanding of competition:** This may include viewing competitor websites, documentation, press releases, demos, and speaking with competitors' customers about their experiences with their software. TPS should focus specifically on competitors in the "Human Services Software" strategic group, and find potential human services software customers that are willing to describe their experiences with competitors' software.

The "Strategy" stage involves a detailed formulation of product strategy. This includes the following activities:

- **Defining the target market segment:** as described earlier, factors may include organization size and program area. TPS has strong domain knowledge in child and family services, so it should analyze that segment closely for opportunities.
- **Defining the market size and opportunity:** this may include further research on competitor's revenues and software spending in the market segment.
- **Defining the Product Roadmap:** this will involve expressing the general sequence of evolutionary steps that will realize the vision of the product, keeping in mind the need to support or migrate existing SectorLynx and Sohema customers to the new product.

The "Business" stage involves selecting a product technology platform, performing a financial analysis, and documenting the strategy in a comprehensive business plan. This includes the following activities:

- **Selecting a product platform:** this is a very important activity and will require a rigorous review of industry technologies, including their strengths and weaknesses, particularly in relation to technical fit, licensing terms, and future flexibility.
- **Determining product pricing:** this will involve a review of information gathered during competitive analysis to determine pricing that is both competitive and reflective of the value provided by the software. It is assumed that TPS will choose a differentiation versus cost strategy, but it may also have to enter the market with lower costs initially, until it has developed a strong differentiation story.
- **Performing a financial analysis:** before making a significant investment in developing the new product, TPS should perform a financial analysis that takes a variety of factors into account, including industry cost and profit benchmarks, market size, sales forecasts, technology platform licensing costs, pricing, sales and marketing costs, and operational costs.
- **Determining organizational impact:** changes to the product strategy will impact the organization, in relation to organizational structure and systems; the extent of these impacts should be taken into consideration.
- **Preparing the business plan:** after the previous activities have been completed, TPS should prepare a detailed business plan that documents the research and analysis

conducted to justify the investment and communicate the strategy to others in the company.

At the completion of these activities, the product manager will be in a good position to articulate a clear product strategy to sales, marketing, and development teams. However, changes in the company culture will also improve the overall management and execution of the software product business strategy.

Company Culture

Changing a company's culture and the values that support it is extremely difficult; some of TPS' values have become constraints, leading to core rigidities that make a shift in strategy difficult (Leonard, 1995). However, like an individual, a company can change and grow over time, particularly when faced with a crisis. According to an internal assessment of the company's resources and capabilities, while TPS is characterized as a company with a can-do culture that is open, flexible, and opportunistic, the assessment identifies many of these virtues as potential vices, where flexibility and opportunism have led to a preference for short-term planning, and consequently inconsistent focus and uneven performance (Hathway, TP Systems Internal Review, 2010). Furthermore, the company may be characterized as having a family-like culture that promotes within and favours optimism, intuition, and self-reliance; however, this culture can also lead to consensus and assumption-based decision making, along with occasional insularity in terms of seeking external expertise and solutions.

TPS may want to consider the following principles to improve the performance of its product strategy, addressing some of the issues related to its current culture: stay focused; plan for the long-term; use data to make decisions; and, get help from others. Adopting these principles will take time, but simply articulating them is a first step to embracing them.

Principle	Rationale
Plan for the long-term	Implies that the company look at the big picture and make investments with the expectation of a positive return on investment over a longer-term (e.g. 2 – 5 years). Practically, this means that TPS should expect that new product development will take time, and that product growth and maturity is a long-term investment that requires patience.
Use data to make decisions	Implies that the company uses market research or data from its own information systems to support its decisions instead of relying on personal opinion or anecdotal evidence. Practically, this means using data from past custom software development projects to estimate development effort, or statistical market data to define the size of potential opportunities before pursuing them.
Get help from others	Implies that the company hire experts or outsource activities that are not part of its core business. Practically, this means hiring consultants to assist with the acquisition of new human services industry domain knowledge, or hiring contractors to design product marketing materials.
Stay focused	Implies that the company develop a plan and stick with it, unless there is a compelling reason not to. Practically, this means preparing a comprehensive business plan and product development schedule, communicating status to stakeholders, setting up an idea exchange to capture new ideas about product direction, and evaluating those ideas for relevancy on an interim basis.

Table 22: Product Management Principles

Section Summary and Conclusions

By introducing the product management discipline and embracing new principles, TPS can improve the performance of its software product business strategy, and likely the performance of other lines of business within the company. Product management is an essential role in product-oriented companies, as it improves product planning, design and positioning, while ensuring accountability through a dedicated product manager role. Although changing company culture will take time, embracing new principles appropriate to product management will benefit the company in the long-run, allowing it to focus on substantiated opportunities that increase the chance of positive financial performance and sustainable growth.

5.6 Chapter Summary and Conclusions

TPS has experienced a bumpy road on the way to formulating its software product business strategy over the last four years; however, the company has learned a lot of lessons along the way and is in a much better position to define and understand its options. The company has key strengths that afford it a competitive advantage, such as its provision of a broad range of IT services, and its skilled technical staff. Alternatively, the company must improve its implementation capabilities and consider an increase in research and development funding to remain competitive. Of four strategic options available pertaining to its software product

business strategy, the best fit involves rebuilding the Sohema product using a new technology platform while continuing to target the human services software market; however, the success of this option is highly dependent on finding a suitable platform.

Despite this recommendation, other factors and issues have influenced the performance of the product strategy. By introducing the product management discipline and introducing new principles to the corporate culture, TPS will improve the overall performance of its software business strategy, regardless of the strategic option it chooses.

6 Conclusion

TPS has been successfully selling IT services to the human services software industry for most of its history; however, selling software products to that same industry proved difficult in the past, partly due to a product portfolio that did not meet market needs, and a lack of focus that prevented the company from making long-term focused investments to improve those products. Although TPS has not seen the results it desired from its past product strategies, it has learned important lessons along the way; the company is making positive changes to ensure future success. One positive change includes the sponsorship of this report, which has endeavoured to provide TPS with a better understanding of the software publishing industry, to benchmark performance and set expectations, and the human services software market, to identify customer challenges, common solutions, and competition.

Within the software publishing industry, vendor concentration is low in the health and social assistance application software segment, which also has a market size in excess of $600 million; with a software publishing industry average profit of 12%, these findings indicate good financial opportunity for TPS if it is able to design, develop, and sell a high-quality and easy-to-use product that contains the feature set expected by buyer of human services software. The human services software market is relatively easy to enter but subject to rivalry, given the relatively high number of vendors competing in the market, particularly within the human services software strategic group; sample competitors in this strategic group include Defran, UNI/CARE, Qualifacts, and CTK. TPS should gather additional information about these competitors, including their annual revenues, product feature set, and customer base, to further refine the market size estimate and look for opportunities to differentiate its product.

Having a good understanding of the industry that TPS competes in is necessary for formulating good strategy; however, TPS must balance market opportunities with the resources and capabilities it has available. TPS has particular strengths in its capability to provide a broad range of IT services and its access to skilled technical staff, affording it a distinct competitive advantage in comparison to other vendors. At the same time, TPS must improve its software implementation processes and consider increasing its research and development spending to ensure that it launches a quality product within the schedule constraints defined by its strategic

objectives. Finally, TPS must invest in the acquisition of deeper human services industry domain knowledge, specifically pertaining to the US, if it wishes to successfully enter that geographic market.

Because the current version of Sohema does not possess the minimum set of features required to compete in the human services software market, TPS has to consider its strategic options. Upon a definition of its strategic and financial objectives, the best option for TPS to pursue is one that that involves the redevelopment of the Sohema product using a flexibly third-party technology platform; this allows TPS to focus less on technology and more on acquiring domain knowledge and implementing the minimum product feature set.

In conclusion, TPS is a well-established Canadian company that has what it needs to grow its business through the sale of software products to the US human services software market. Given its 33-year history of providing IT services to organizations that help society's most vulnerable individuals, TPS has the credibility, knowledge, and maturity to compete with other vendors in the market. If TPS invests in implementing the right software product features with a high degree of quality and usability, Sohema will prove to be a formidable human services software product that will generate positive financial returns and finally address the company's original objective to diversify its sources of revenue, leading to sustainable long-term growth.

Appendices

Appendix A: Key Competitors

Organization	Product	Website
Generic Enterprise Software Suites		
Microsoft	Microsoft Dynamics	www.microsoft.com
Oracle	Oracle e-Business Suite	www.oracle.com
Sage	Sage CRM	www.sagecrmsolutions.com
SAP	Social Enterprise Framework	www.sap.com
Human Services Enterprise Software		
Cúram Software	N/A	www.cúramsoftware.com
Lagan	N/A	www.lagan.com
Human Services Software		
Anasazi Software	N/A	www.anasazisoftware.com
Askesis Development Group	PsychConsult Provider	www.askesis.com
Athena Software	Penelope	www.athenasoftware.net
Bowman Systems	ServicePoint	www.bowmansystems.com
Community TechKnowledge (CTK)	Online Data Manager (ODM)	www.communitytech.net
Credible Behavioral Health Software	N/A	www.credibleinc.com
Data Systems International (DSI)	ClientTrack	www.clienttrack.com
DeFran Systems	Evolv-CS	www.defran.com
Duke Behavioral Health Informatics	MindLinc	www.mindlinc.com
Global Vision Technologies	FAMCare	www.famcare.net
Handel Information Technologies Inc	RiteTrack	www.handelit.com
Netsmart Technologies	Avatar	www.ntst.com
Qualifacts Systems Inc	CareLogic	www.qualifacts.com
Social Solutions Inc	Efforts-to-Outcomes (ETO)	www.socialsolutionsonline.com
UNI/CARE	Pro-Filer	www.unicaresys.com
Unicentric	Service Xpert Suite	www.unicentric.com
Niche-Focused Human Services Software		
Harmony Information Systems	Harmony for Aging	www.harmonyis.com
Kaleidacare Management Solutions	Kaleidacare Solutions	www.kaleidacare.com
Software-as-a-Service Platforms		
Microsoft	Microsoft Dynamics CRM Online	www.microsoft.com
SalesForce.com	Force.com	www.salesforce.com

Table 23: Key Human Services Software Competitors

Appendix B: Non-Profit Market Size Data

The following table provides additional data and notes concerning the calculation of market size for the non-profit segment of the human services software market.

		Agency Size			
		Small	Medium	Large	Very Large
1	Annual Income Range	< $500 k	$500 k - $2.5 m	$2.5 m - 10 m	> $10 m
2	Total Annual Income[1]	$42,320,132,074	$98,757,166,964	$294,346,874,181	$407,197,597,424
3	% of Agencies Wanting Software[2]	5%	25%	50%	60%
4	% Income Spent on IT Budget[3]	14%	6%	3%	3%
5	% of IT Budget Spent on Staffing[4]	46%	64%	65%	53%
6	% of IT Budget Spent on Other[5]	54%	36%	35%	47%
7	% of Other IT Budget Spent on Software[6]	5%	5%	10%	10%
8	IT Budget Spent on Software[7]	$7,998,505	$26,664,435	$154,532,109	$344,489,167
9	TOTAL FOR ALL ORGANIZATIONS	$533,684,216			

Table 24: Non-Profit Market Size Data

[1] Data from National Center for Charitable Statistics (Search Parameters - Show: Registered Nonprofits; By: Total Revenue Level; For: 2010 Jan, 2010 Apr, 2009 Oct, 2009 Jul; Broad Categories: HU Human Services; Public Charity, Private Foundation, or Other Nonprofits: Public Charity)
[2] Estimated
[3] Data from NTEN Report (Bernard & Dr. Pukstas, 2010)
[4] Data from NTEN Report (Bernard & Dr. Pukstas, 2010)
[5] Remaining percentage of budget after staffing is accounted for
[6] Estimated
[7] Multiply rows 2,3,4,6,7

Appendix C: The Case Management Process

Human services organizations typically deliver services using the case management process, which may be defined by six major stages, as depicted by the blue chevrons below.

Figure 26: Steps in the Case Management Process (Fiorentino, Duggan, & Berman, 2008):

In IBM's Social Industry Model paper, the authors describe the Social Process Model in further detail (Fiorentino, Duggan, & Berman, 2008):

- **Registration:** the stage when an individual or family joins a human services program
- **Intake and Referral:** the stage when the organization considers the bundle of services that are required to assist this individual or family
- **Verification and Assessment:** the stage when the organization assesses the current state (i.e. health) of the individual or family, and validates the evidence provided
- **Eligibility and Entitlement:** the stage when the organization determines whether or not an individual or family is entitled to assistance, and to what extent, based on organizational policy
- **Service Delivery:** the stage when the organization delivers services

References

Bernard, C., & Dr. Pukstas, K. (2010). *2009 IT Staffing & Spending Report.* Portland, OR: Non-Profit Technology Network (NTEN).

Butler, E. (2009). *IBISWorld Industry Report 62411 Adoption & Child Welfare Services in the US.* IBISWorld.

Dubicki, R. (2010, May). Corporate Overview. TP Systems Ltd.

Duggan, M. (2005). *Social System Industry Dynamics.* White Plains, NY: IBM Press.

Fiorentino, J., Duggan, M., & Berman, B. (2008, August). *IBM Social Industry Model.* Retrieved July 5, 2010, from IBM: http://www.ibm.com/common/ssi/cgi-bin/ssialias?infotype=SA&subtype=WH&htmlfid=GVW03005USEN&attachment=GVW03005USEN.PDF&appname=SNDE_GD_GG_USEN_WH

Grant, R. M. (2008). *Contemporary Strategy Analysis.* Malden, MA: Blackwell Publishing.

GuideStar. (2010). Retrieved April 14, 2010, from GuideStar: http://www2.guidestar.org/

Hathway, D. (2010, June 18). Interview with Manager of Business Development, Products. (G. Oystryk, Interviewer)

Hathway, D. (2010). *TP Systems Internal Review.* New Westminster, BC: TP Systems Ltd.

Isaacs, S. (2010, May 11). Company Profile and Information. TP Systems Ltd.

Leganza, G. (2009). *Market Update: Human And Social Services Enterprise Software.* Forrester Research.

Leonard, D. (1995). *Wellsprings of Knowledge.* Boston, MA: Harvard Business School Press.

Microsoft. (2010, July 22). *Third Quarter 2010 Earnings Report.* Retrieved July 25, 2010, from Microsoft.com: http://www.microsoft.com/msft/earnings/FY10/earn_rel_q3_10.mspx

Mulligan, J. (2007, October 20). Curam revenue up but still in the red. *The Irish Times*, p. 19.

Naughton-Travers, J. (2010a, July). Software Specifications. Open Minds.

Naughton-Travers, J. (2010b, July). The U.S. Behavioral Health & Social Services Market: An Executive Briefing on National Trends & Technology Adoption. Open Minds.

NCCS. (2003). *NPC Program Code List.* Retrieved July 5, 2010, from National Center for Charitable Statistics (NCCS): http://nccsdataweb.urban.org/kbfiles/466/NPC-lookup.pdf

NCCS. (2010). Retrieved April 14, 2010, from National Center for Charitable Statistics: http://nccs.urban.org/

Ngai, M. (2010, June 11). Interview with TPS Chief Operating Officer (COO). (G. Oystryk, Interviewer)

NPower. (2009, July). *Community Technology Survey.* Retrieved July 5, 2010, from NPower: http://www.npower.org/files/page/NPower_Community_Tech_Survey_Results.pdf

NPower. (2010). *A Mission Support Tool for Health and Human Services.* Retrieved July 5, 2010, from NPower: http://www.npower.org/files/page/techguide_health.pdf

Porter, M. E. (2008, January). The Five Competitive Forces that Shape Strategy. *Harvard Business Review*, pp. 78-93.

Pragmatic Marketing. (2010). *Practical Product Management.* Pragmatic Marketing Inc.

Ross, H. (2010). *2009 Data Ecosystem Survey.* Portland, OR: Non-Profit Technology Network (NTEN).

SalesForce.com. (2010). Retrieved August 1, 2010, from SalesForce.com Foundation: http://www.salesforcefoundation.org/default-trial-signup

Thompson, J. (2010, June 16). Interview with TPS President. (G. Oystryk, Interviewer)

Thormahlen, C. (2010). *IBISWorld Industry Report 51121 Software Publishing in the US.* IBISWorld.

TP Systems Ltd. (2009). *Customer Satisfaction Survey.* New Westminster, BC: TP Systems Ltd.

TP Systems Ltd. (2009, May 6). TP Handbook: A helpful guide to working at TP Systems. TP Systems Ltd.

U.S. Census Bureau. (2009, March 17). *Sector 00: EC0700CADV1: All sectors: Core Business Statistics Series: Advance Summary Statistics for the United States (2007 NAICS Basis): 2007*. Retrieved July 5, 2010, from US Census Bureau: American Fact Finder: http://factfinder.census.gov/servlet/IBQTable?_bm=y&-ds_name=EC0700CADV1&-_lang=en